Barry Williams

Principal Consultant

Database Answers Ltd.

barryw@databaseanswers.org

8. Enterprise Data Models

8.0 Welcome

You are invited to follow developments in the Library of Data Models on our Web Site :-
* http://www.databaseanswers.org/data_models/index.htm

You can also join our Database Answers Community
* http://databaseanswers.ning.com/

8.1 Introduction

This Chapter will discuss Enterprise Data Models for a number of different kinds of enterprise.

8.1.1 What is this ?

8.1.2 Why is it important ?

Being able to create Enterprise Data Models will help you to handle the most challenging situations that you might encounter as a Data Modeller.

The Best Practice Approach has these Steps :-

- Create a Top-Level Data Model that represents a business-eye view of the organisation.

    - It will include all the Subject Areas, such as Marketing, Finance and CRM.

    - Each of these Subject Areas will have its own Data Model.

8.1.3 What will I Learn ?

Enterprise Data Models are very useful because they help to establishing 'A Single Version of the Truth'.

For example, it is common for organisations to have multiple occurrences of Customer records, with the same person appearing as Joe Bloggs, Joseph Bloggs, Joey Bloggs and so on.

These can be matched to one common record and all the associated details can be consolidated.

This aspect is discussed in more details in Chapter 11 that covers Master Data Management.

The Approach we adopt is to define a 'Statement of Objectives' that will establish the important Things of Interest that need to be in the Enterprise Data Model.

This establishes a context from which Subject Areas can be derived. Any change in the Statement of Objectives can easily be reflected in changes to the Subject Areas.

8.2 Business Intelligence (BI)

8.2.1 Statement of Objectives

Our example is our Anglo-Swiss Consulting Company which has offices in London and Zurich.

The typical Statement of Objectives for our Company would be stated in these terms :-

"To provide high-level consulting services to a targeted Clients operating from multiple locations.

To support these Objectives, we have designed a BI approach called BMEWS, which stands for –

"Business Monitoring and Early Warning System".

"To provide a flexible solution to a range of user requirements for Business Intelligence.."

Therefore, the Subject Areas in the Enterprise Data Model must include :-

Consulting :-

- Clients

- Costs

- Revenues

- Services

- Staff

BMEWS :-

- Data Warehouse and Data Marts

- Key Performance Indicators ('KPIs')

- Data Sources and Integration

8.2.2 The Enterprise Data Model

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_BMEWS/index.htm

Enterprise Data Model for BMEWS BI
Barry Williams
Principal Consultant
DatabaseAnswers.com
April 19th 2011

Data Warehouse

Common Data Model

| Staff | Clients | Services |

Timesheets   Invoices   Services for Clients

Deliverables

8.2.3 BI Data Warehouse

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_BMEWS/index.htm

Data Warehouse for BMEWS BI
Barry Williams
DatabaseAnswers.org
April 19th. 2011

Clients

PK Client_ID
Client_Details

Data_Warehouse_Facts

PK Fact_ID
FK Client_ID
FK Day_Date
FK Deliverable_ID
FK Invoice_ID
FK Service_ID
FK Services_for_Clients_ID
FK Staff_ID
FK Timesheet_ID
Averages, Counts, Totals
KPIs, Graphs, Trends
Other Derived Figures

Services

PK Service_ID
Service_Details

Deliverables

PK Deliverable_ID
Deliverable_Details

Services_for_Clients

PK Services_for_Clients_ID
Services_for_Clients_Details

Invoices

PK Invoice_ID
Invoice_Details

Staff

PK Staff_ID
Staff_Details

Ref_Calendar

PK Day_Date

Timesheets

PK Timesheet_ID
Timesheet_Details

8.3 Insurance

8.3.1 Statement of Objectives

The typical Statement of Objectives for an Insurance company would be stated in these terms :-

"To provide a wide range of attractively-priced and economical services to a targeted range of customers., with economic management of Claims processing and Settlements."

Therefore, the Subject Areas in the Enterprise Data Model must include :-

- Claims

- Customers

- Policies

- Products and Services

- Staff

- Settlements

8.3.2 The Enterprise Data Model

This Model appears on this page on the Database Answers Web Site :-

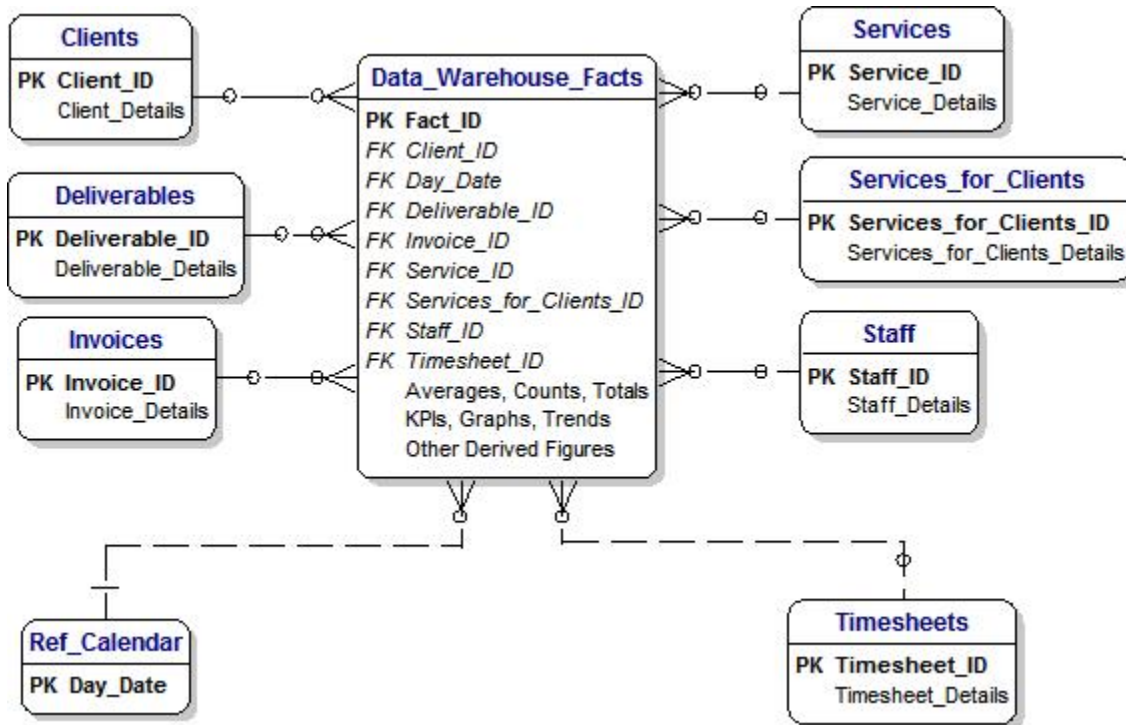- http://www.databaseanswers.org/data_models/enterprise_data_model_for_insurance/index.htm

8.3.3 The Customers, Claims and Brokers Subject Area
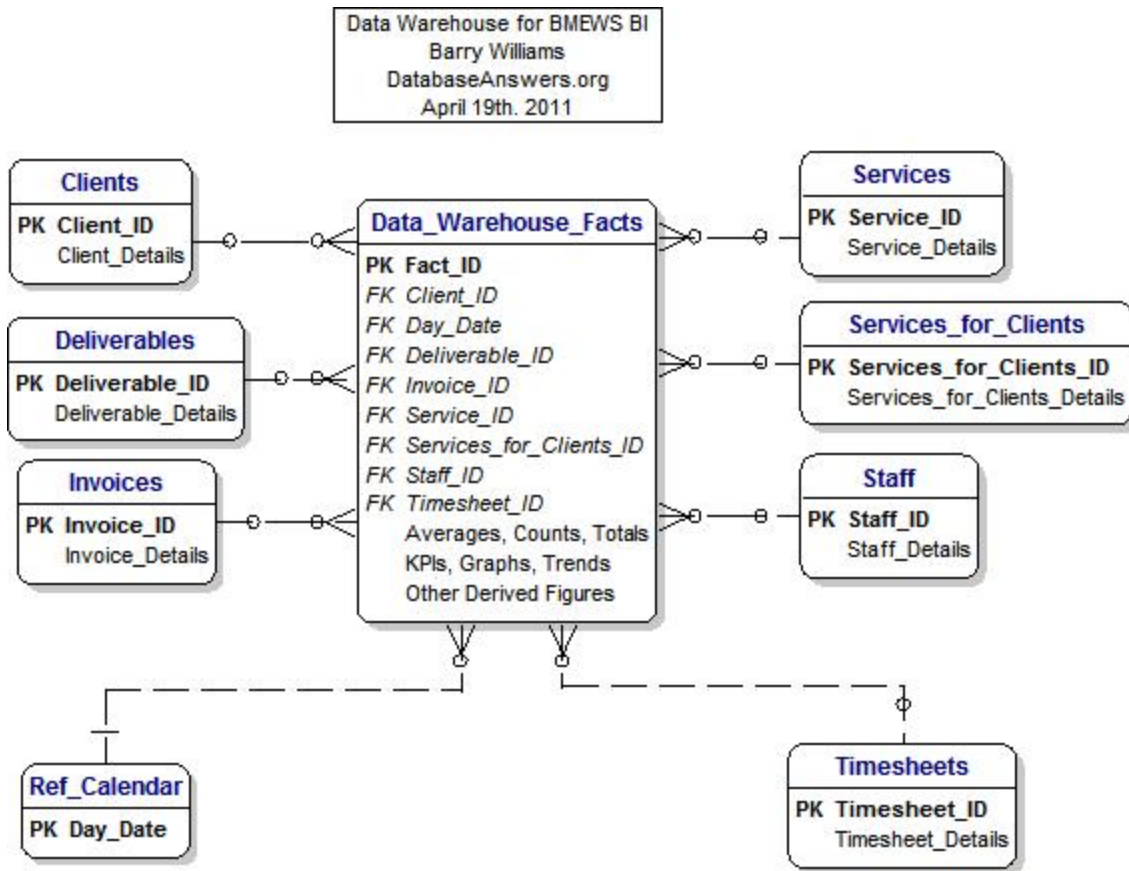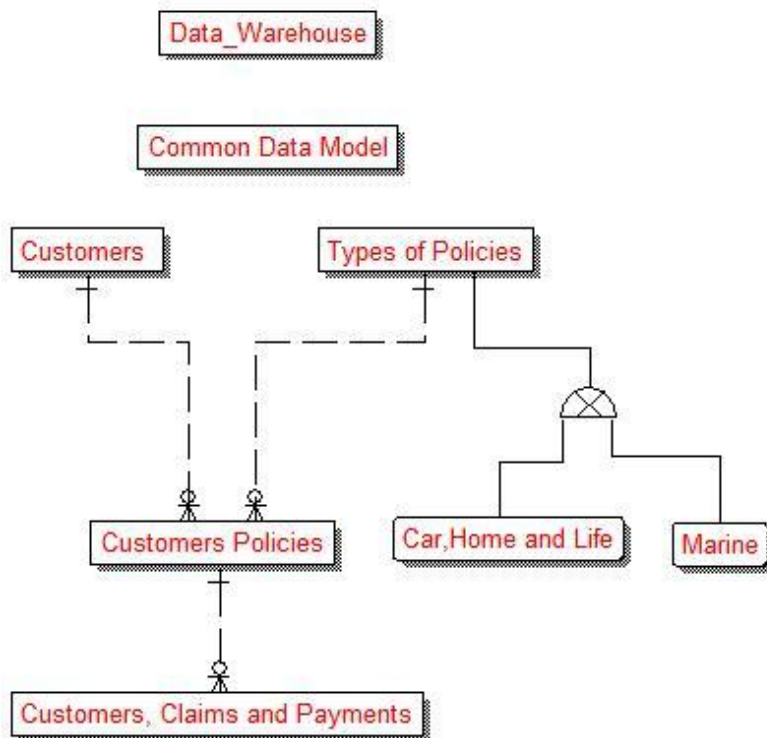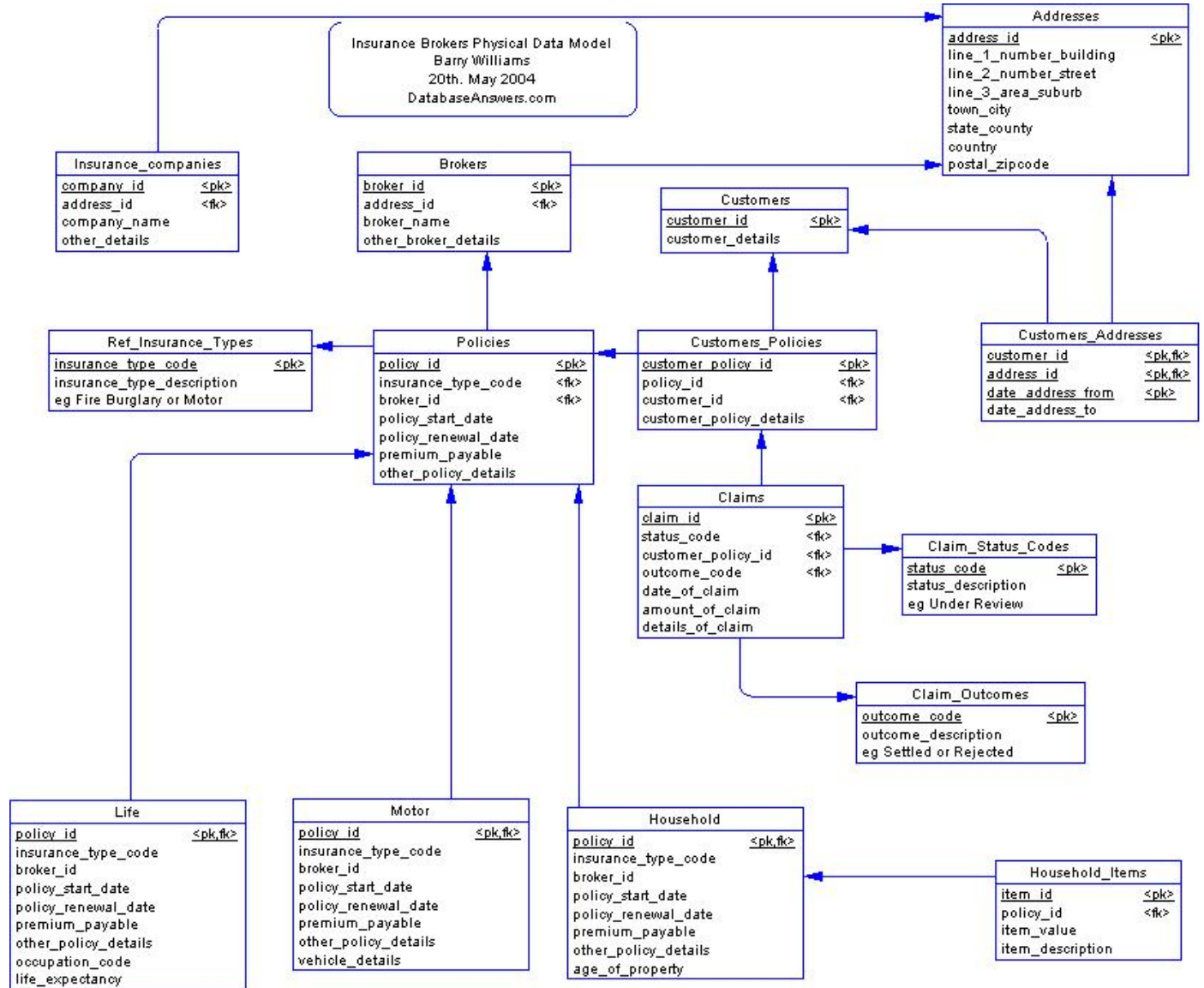
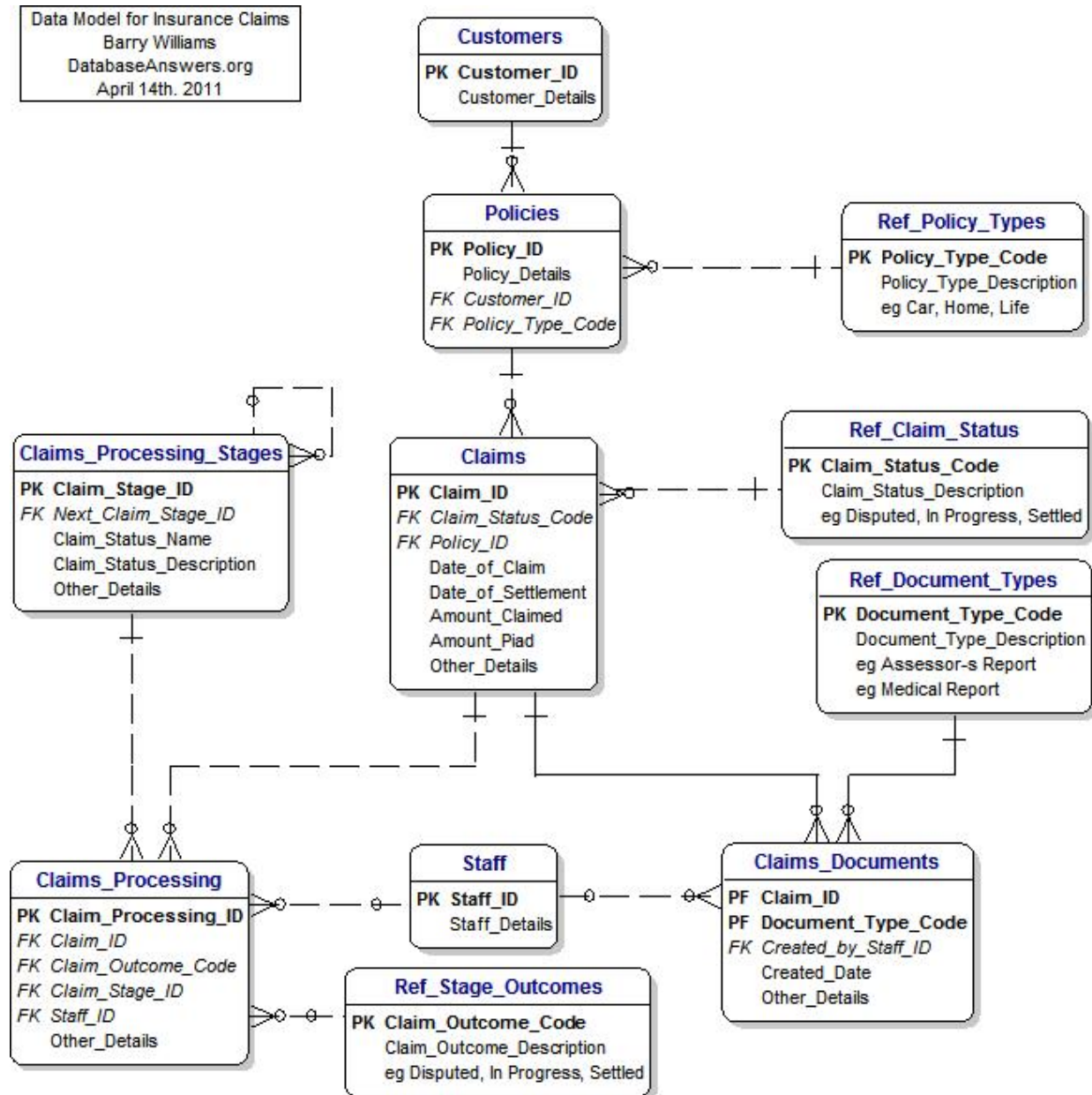This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_customers_and_claims/insurance_brokers_erwin_physical.htm

Insurance Brokers Physical Data Model
Barry Williams
20th. May 2004
DatabaseAnswers.com

Addresses
address_id	<pk>
line_1_number_building	
line_2_number_street	
line_3_area_suburb	
town_city	
state_county	
country	
postal_zipcode	

Insurance_companies
company_id	<pk>
address_id	<fk>
company_name	
other_details	

Brokers
broker_id	<pk>
address_id	<fk>
broker_name	
other_broker_details	

Customers
| customer_id | <pk> |
| customer_details | |

Ref_Insurance_Types
insurance_type_code	<pk>
insurance_type_description	
eg Fire Burglary or Motor	

Policies
policy_id	<pk>
insurance_type_code	<fk>
broker_id	<fk>
policy_start_date	
policy_renewal_date	
premium_payable	
other_policy_details	

Customers_Policies
customer_policy_id	<pk>
policy_id	<fk>
customer_id	<fk>
customer_policy_details	

Customers_Addresses
customer_id	<pk,fk>
address_id	<pk,fk>
date_address_from	<pk>
date_address_to	

Claims
claim_id	<pk>
status_code	<fk>
customer_policy_id	<fk>
outcome_code	<fk>
date_of_claim	
amount_of_claim	
details_of_claim	

Claim_Status_Codes
status_code	<pk>
status_description	
eg Under Review	

Claim_Outcomes
outcome_code	<pk>
outcome_description	
eg Settled or Rejected	

Life
policy_id	<pk,fk>
insurance_type_code	
broker_id	
policy_start_date	
policy_renewal_date	
premium_payable	
other_policy_details	
occupation_code	
life_expectancy	

Motor
policy_id	<pk,fk>
insurance_type_code	
broker_id	
policy_start_date	
policy_renewal_date	
premium_payable	
other_policy_details	
vehicle_details	

Household
policy_id	<pk,fk>
insurance_type_code	
broker_id	
policy_start_date	
policy_renewal_date	
premium_payable	
other_policy_details	
age_of_property	

Household_Items
item_id	<pk>
policy_id	<fk>
item_value	
item_description	

8.3.4 Policies and Claims Subject Area

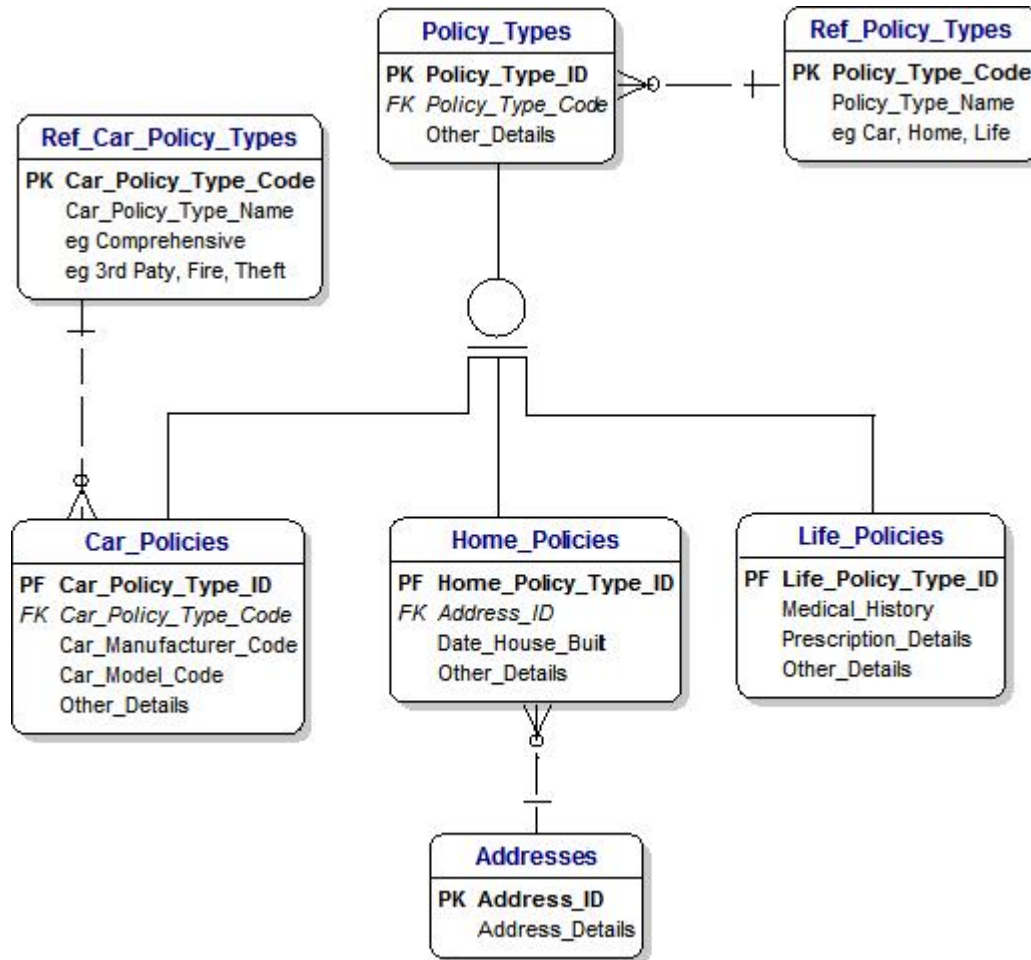This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_policies_and_claims/index.htm

- Was - http://www.databaseanswers.org/data_models/insurance_personal/index.htm

8.3.5 Types of Insurance - Car, Home and Life Subject Area

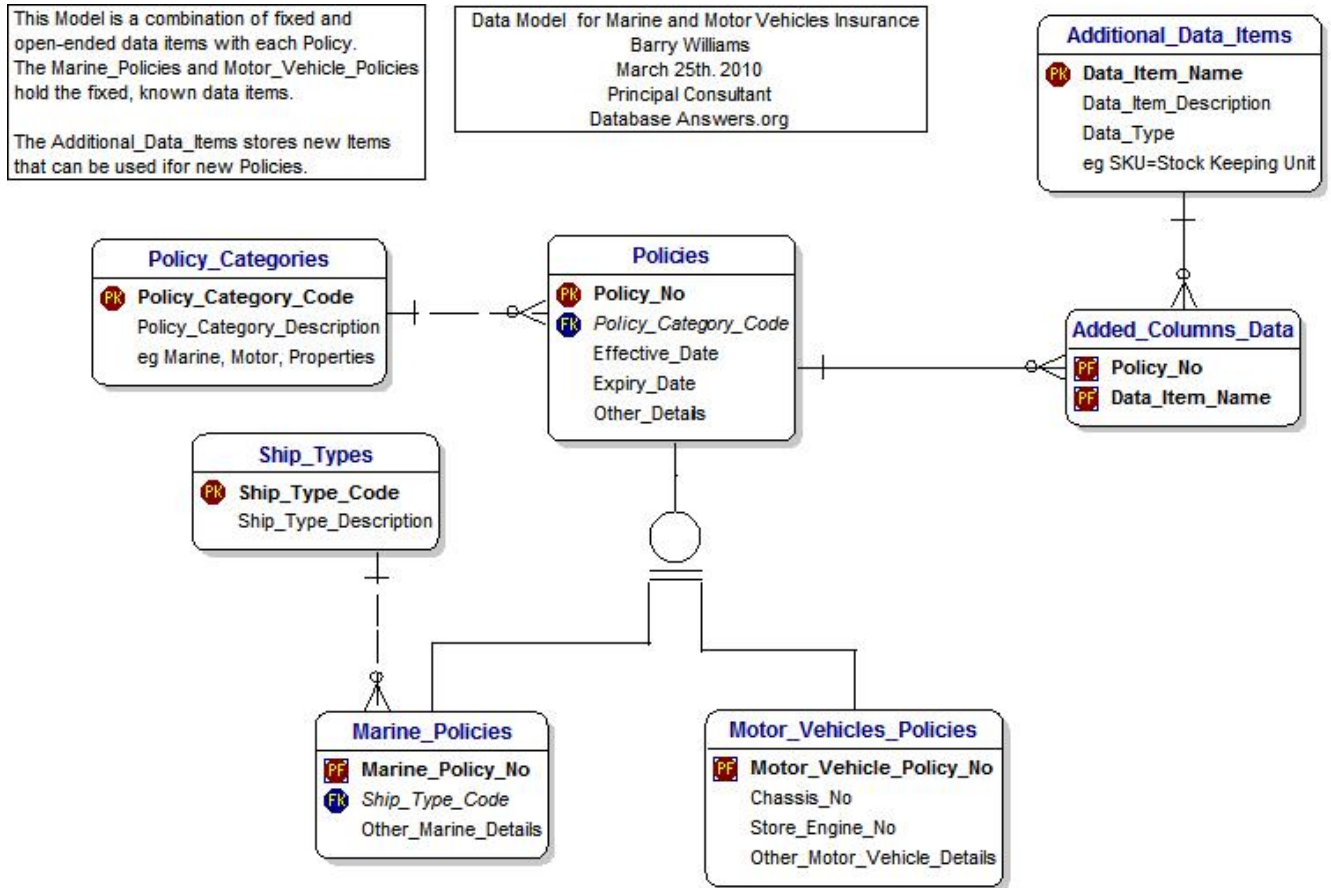This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_car_home_life/index.htm

Policy_Types

PK Policy_Type_ID
FK Policy_Type_Code
Other_Details

Ref_Policy_Types

PK Policy_Type_Code
Policy_Type_Name
eg Car, Home, Life

Ref_Car_Policy_Types

PK Car_Policy_Type_Code
Car_Policy_Type_Name
eg Comprehensive
eg 3rd Paty, Fire, Theft

Car_Policies

PF Car_Policy_Type_ID
FK Car_Policy_Type_Code
Car_Manufacturer_Code
Car_Model_Code
Other_Details

Home_Policies

PF Home_Policy_Type_ID
FK Address_ID
Date_House_Built
Other_Details

Life_Policies

PF Life_Policy_Type_ID
Medical_History
Prescription_Details
Other_Details

Addresses

PK Address_ID
Address_Details

8.3.6 Types of Insurance – Marine and Motor Vehicles Subject Area

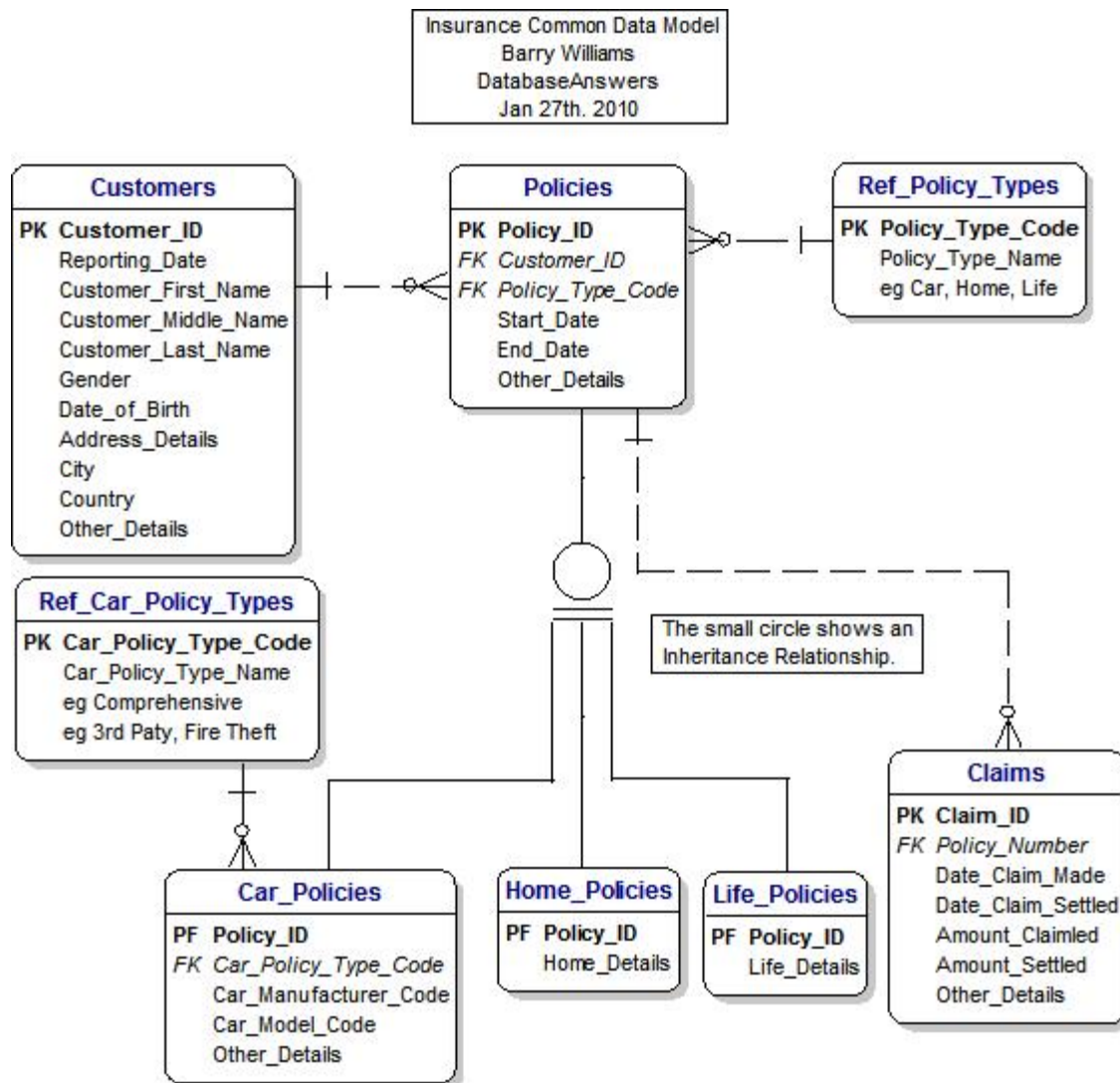This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_general/index.htm

This Model is a combination of fixed and open-ended data items with each Policy. The Marine_Policies and Motor_Vehicle_Policies hold the fixed, known data items.

The Additional_Data_Items stores new Items that can be used ifor new Policies.

Data Model for Marine and Motor Vehicles Insurance
Barry Williams
March 25th. 2010
Principal Consultant
Database Answers.org

Additional_Data_Items
- Data_Item_Name
- Data_Item_Description
- Data_Type
- eg SKU=Stock Keeping Unit

Policy_Categories
- Policy_Category_Code
- Policy_Category_Description
- eg Marine, Motor, Properties

Policies
- Policy_No
- Policy_Category_Code
- Effective_Date
- Expiry_Date
- Other_Details

Added_Columns_Data
- Policy_No
- Data_Item_Name

Ship_Types
- Ship_Type_Code
- Ship_Type_Description

Marine_Policies
- Marine_Policy_No
- Ship_Type_Code
- Other_Marine_Details

Motor_Vehicles_Policies
- Motor_Vehicle_Policy_No
- Chassis_No
- Store_Engine_No
- Other_Motor_Vehicle_Details

8.3.7 Common Data Model

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_data_warehouses/common_data_model.htm

Insurance Common Data Model
Barry Williams
DatabaseAnswers
Jan 27th. 2010

Customers

PK	Customer_ID
	Reporting_Date
	Customer_First_Name
	Customer_Middle_Name
	Customer_Last_Name
	Gender
	Date_of_Birth
	Address_Details
	City
	Country
	Other_Details

Policies

PK	Policy_ID
FK	Customer_ID
FK	Policy_Type_Code
	Start_Date
	End_Date
	Other_Details

Ref_Policy_Types

PK	Policy_Type_Code
	Policy_Type_Name
	eg Car, Home, Life

Ref_Car_Policy_Types

PK	Car_Policy_Type_Code
	Car_Policy_Type_Name
	eg Comprehensive
	eg 3rd Paty, Fire Theft

The small circle shows an Inheritance Relationship.

Car_Policies

PF	Policy_ID
FK	Car_Policy_Type_Code
	Car_Manufacturer_Code
	Car_Model_Code
	Other_Details

Home_Policies

PF	Policy_ID
	Home_Details

Life_Policies

PF	Policy_ID
	Life_Details

Claims

PK	Claim_ID
FK	Policy_Number
	Date_Claim_Made
	Date_Claim_Settled
	Amount_Claimled
	Amount_Settled
	Other_Details

8.3.8 Insurance Data Warehouse

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/insurance_data_warehouses/index.htm
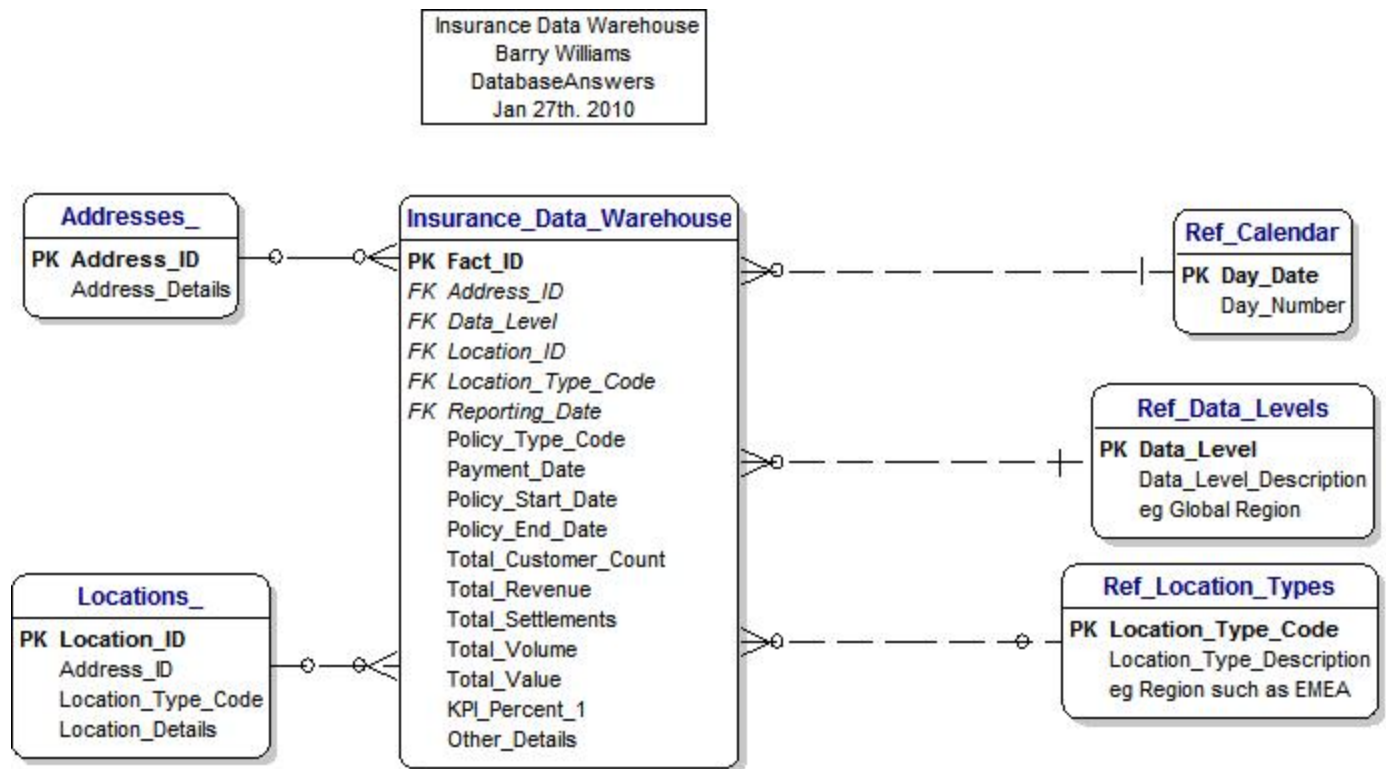
8.4 Investment Banking

8.4.1 Statement of Objectives

The typical Statement of Objectuves for an Investment Bank would be stated in these terms :-

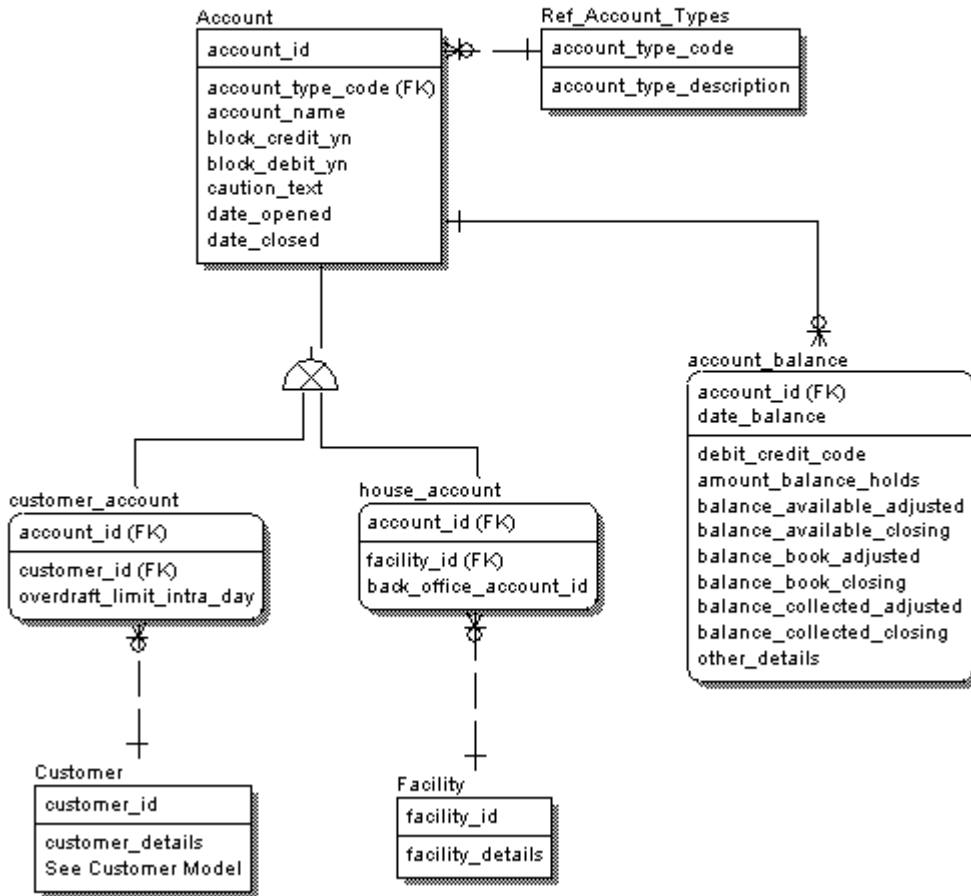"To participate in a profitable trading operation by buying and selling stocks, shares and other commodities."

Therefore, the Subject Areas in the Enterprise Data Model must include :-

- Accounts

- Clients

- Financial Products and Services

- Staff

- Settlements

- Trades or Deals

8.4.2 Enterprise Data Model

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_investment_banks/index.htm

Enterprise Data Model for Investment
Banking
Barry Williams
Principal Consultant
DatabaseAnswers.com
March 26th 2011
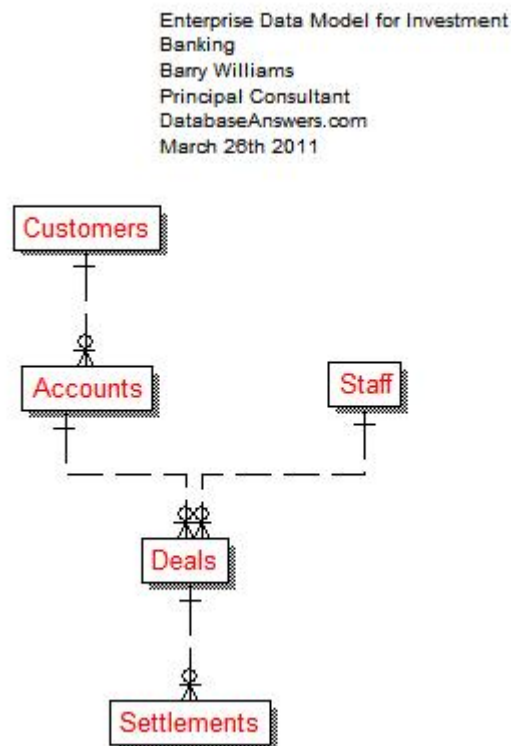
8.4.3 Accounts Subject Area

This Model appears on this page on the Database Answers Web Site :-

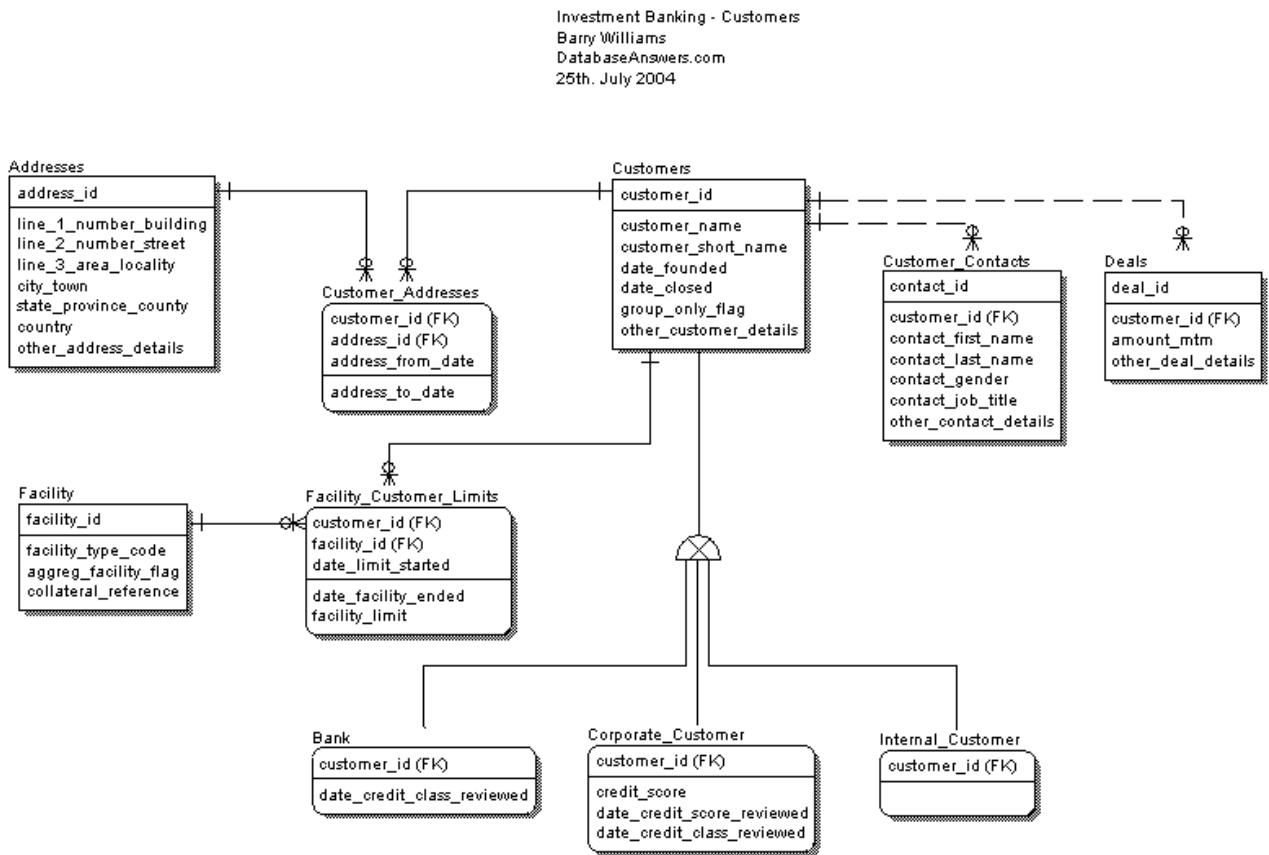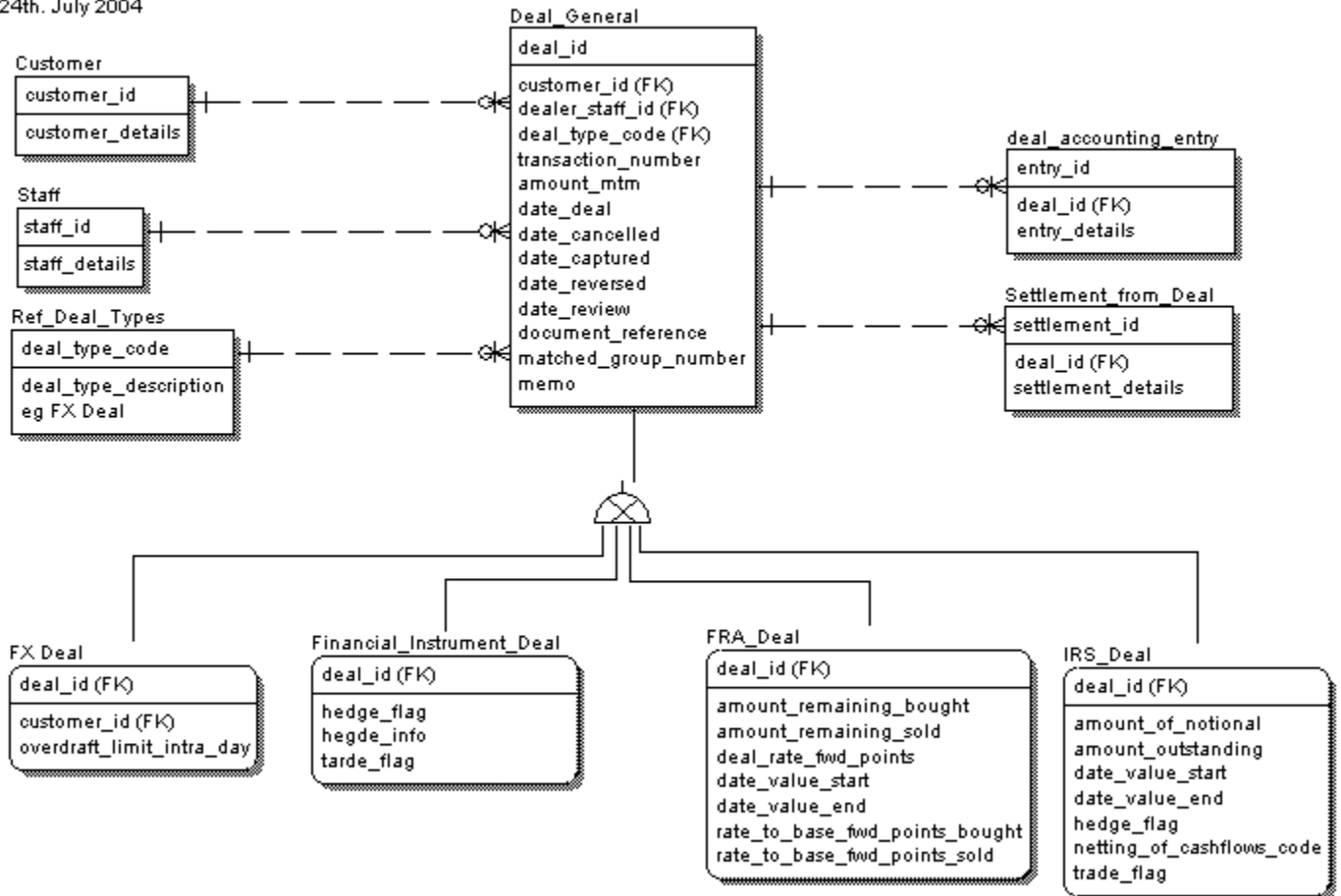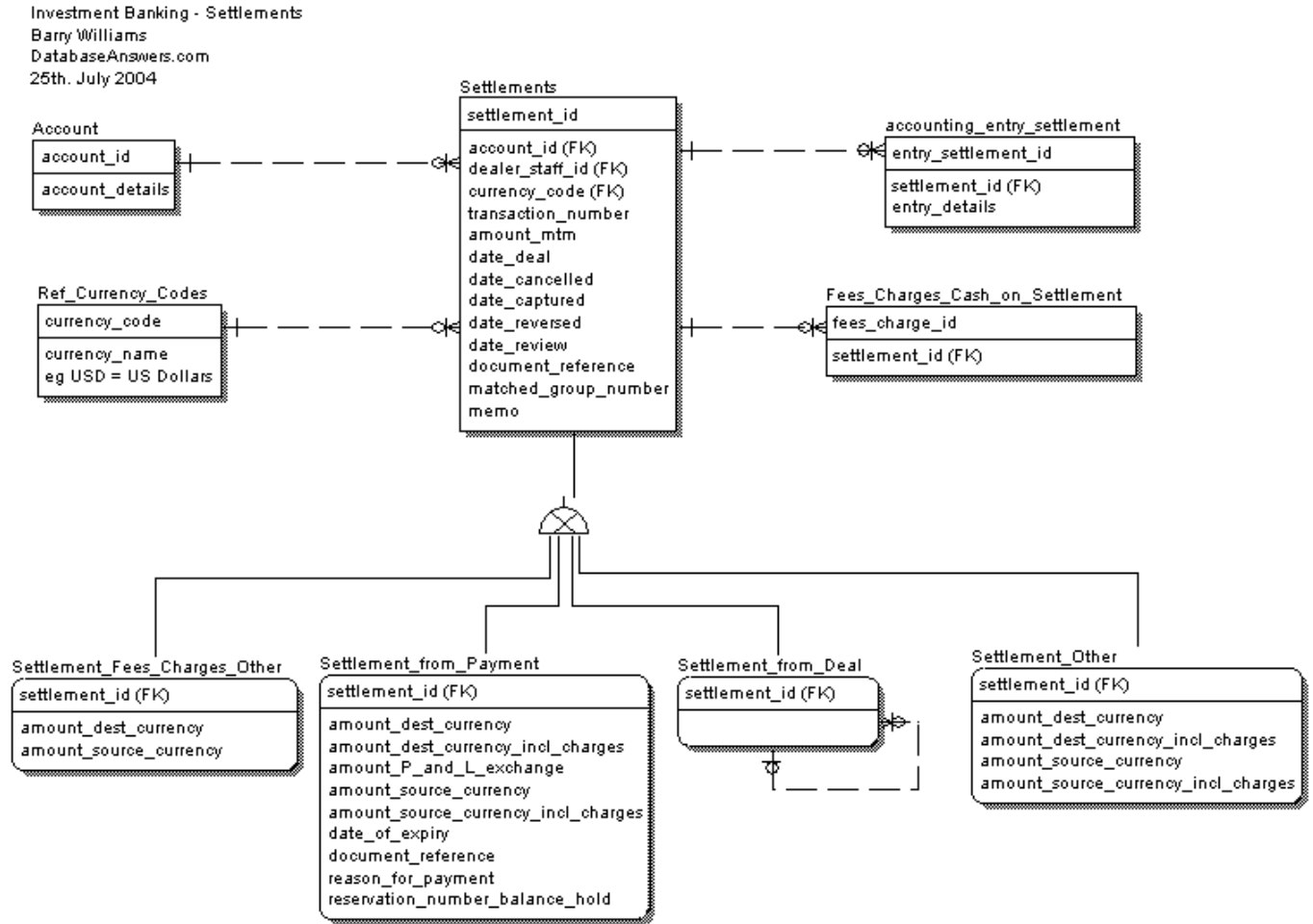- http://www.databaseanswers.org/data_models/investment_banking/accounts.htm

Investment Banking Accounts Model
Barry Williams
Principal Consultant
DatabaseAnswers.com
23rd. July 2004

Account

account_id
account_type_code (FK)
account_name
block_credit_yn
block_debit_yn
caution_text
date_opened
date_closed

Ref_Account_Types

account_type_code
account_type_description

customer_account

account_id (FK)
customer_id (FK)
overdraft_limit_intra_day

house_account

account_id (FK)
facility_id (FK)
back_office_account_id

account_balance

account_id (FK)
date_balance
debit_credit_code
amount_balance_holds
balance_available_adjusted
balance_available_closing
balance_book_adjusted
balance_book_closing
balance_collected_adjusted
balance_collected_closing
other_details

Customer

customer_id
customer_details
See Customer Model

Facility

facility_id
facility_details

8.4.4 Customers Subject Area

This Model appears on this page on the Database Answers Web Site :-

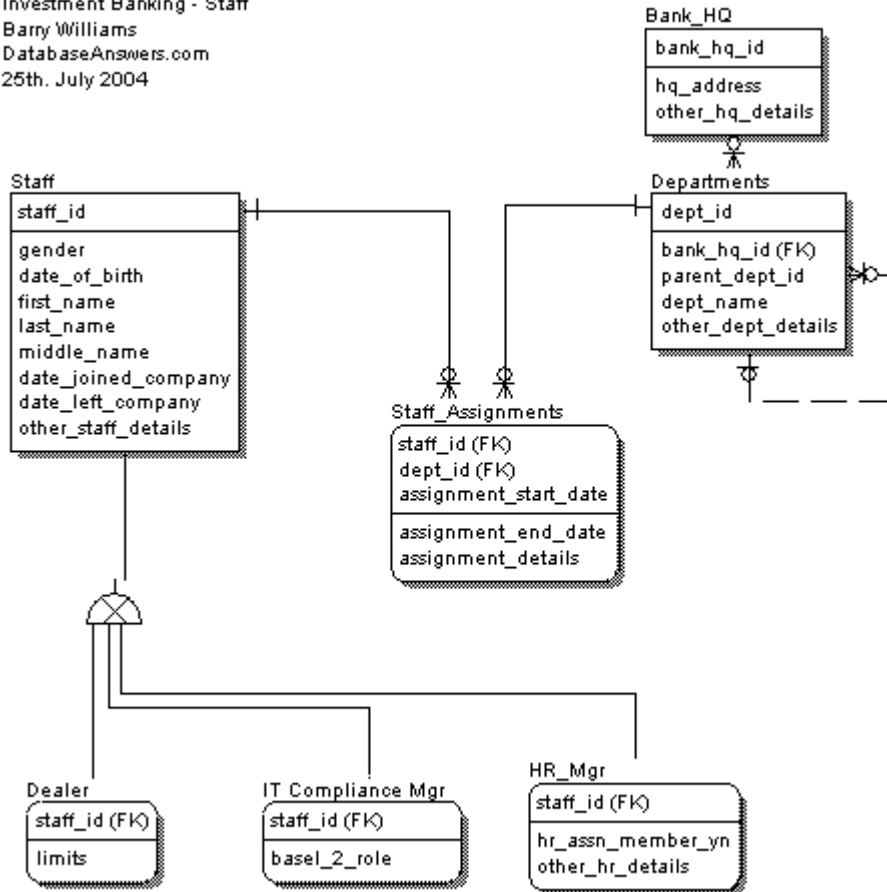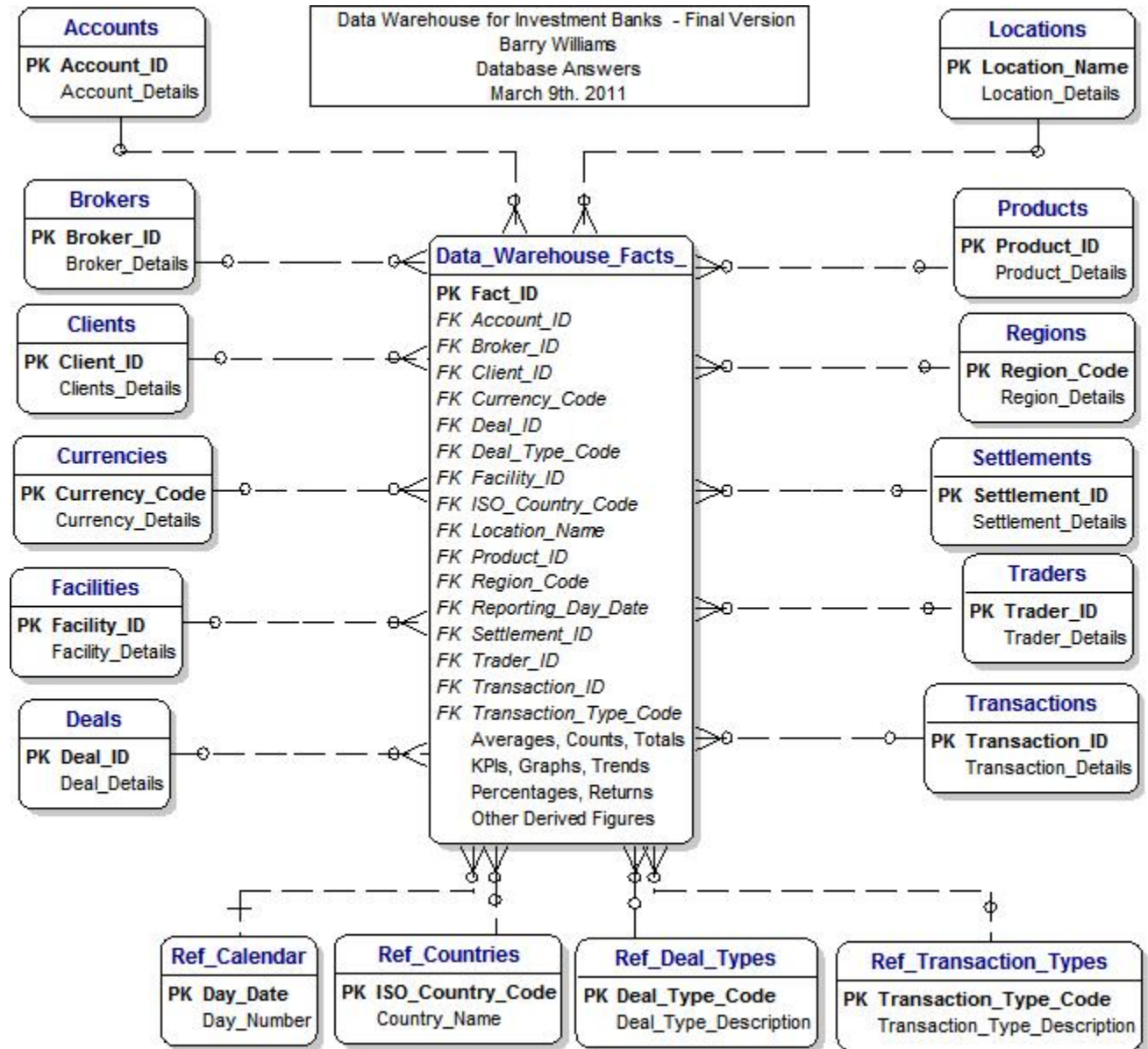- http://www.databaseanswers.org/data_models/investment_banking/customers.htm

Investment Banking - Customers
Barry Williams
DatabaseAnswers.com
25th. July 2004

Addresses
- address_id
- line_1_number_building
- line_2_number_street
- line_3_area_locality
- city_town
- state_province_county
- country
- other_address_details

Customer_Addresses
- customer_id (FK)
- address_id (FK)
- address_from_date
- address_to_date

Customers
- customer_id
- customer_name
- customer_short_name
- date_founded
- date_closed
- group_only_flag
- other_customer_details

Customer_Contacts
- contact_id
- customer_id (FK)
- contact_first_name
- contact_last_name
- contact_gender
- contact_job_title
- other_contact_details

Deals
- deal_id
- customer_id (FK)
- amount_mtm
- other_deal_details

Facility
- facility_id
- facility_type_code
- aggreg_facility_flag
- collateral_reference

Facility_Customer_Limits
- customer_id (FK)
- facility_id (FK)
- date_limit_started
- date_facility_ended
- facility_limit

Bank
- customer_id (FK)
- date_credit_class_reviewed

Corporate_Customer
- customer_id (FK)
- credit_score
- date_credit_score_reviewed
- date_credit_class_reviewed

Internal_Customer
- customer_id (FK)

8.4.5 Deals Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/investment_banking/deals_general.htm

Investment Banking - Deals (General)
Barry Williams
DatabaseAnswers.com
24th. July 2004

Deal_General
- deal_id
- customer_id (FK)
- dealer_staff_id (FK)
- deal_type_code (FK)
- transaction_number
- amount_mtm
- date_deal
- date_cancelled
- date_captured
- date_reversed
- date_review
- document_reference
- matched_group_number
- memo

Customer
- customer_id
- customer_details

Staff
- staff_id
- staff_details

Ref_Deal_Types
- deal_type_code
- deal_type_description
  eg FX Deal

deal_accounting_entry
- entry_id
- deal_id (FK)
- entry_details

Settlement_from_Deal
- settlement_id
- deal_id (FK)
- settlement_details

FX Deal
- deal_id (FK)
- customer_id (FK)
- overdraft_limit_intra_day

Financial_Instrument_Deal
- deal_id (FK)
- hedge_flag
- hegde_info
- tarde_flag

FRA_Deal
- deal_id (FK)
- amount_remaining_bought
- amount_remaining_sold
- deal_rate_fwd_points
- date_value_start
- date_value_end
- rate_to_base_fwd_points_bought
- rate_to_base_fwd_points_sold

IRS_Deal
- deal_id (FK)
- amount_of_notional
- amount_outstanding
- date_value_start
- date_value_end
- hedge_flag
- netting_of_cashflows_code
- trade_flag

8.4.6 Settlements Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/investment_banking/settlements.htm

8.4.7 Staff Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/investment_banking/staff.htm

Investment Banking - Staff
Barry Williams
DatabaseAnswers.com
25th. July 2004

8.4.8 Data Warehouse

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/banking_data_warehouses/investment_banking_data_warehouse_final_version.htm

Accounts		Data Warehouse for Investment Banks - Final Version	Locations

Data Warehouse for Investment Banks - Final Version
Barry Williams
Database Answers
March 9th. 2011

Accounts
PK Account_ID
Account_Details

Locations
PK Location_Name
Location_Details

Brokers
PK Broker_ID
Broker_Details

Clients
PK Client_ID
Clients_Details

Currencies
PK Currency_Code
Currency_Details

Facilities
PK Facility_ID
Facility_Details

Deals
PK Deal_ID
Deal_Details

Data_Warehouse_Facts_
PK Fact_ID
FK Account_ID
FK Broker_ID
FK Client_ID
FK Currency_Code
FK Deal_ID
FK Deal_Type_Code
FK Facility_ID
FK ISO_Country_Code
FK Location_Name
FK Product_ID
FK Region_Code
FK Reporting_Day_Date
FK Settlement_ID
FK Trader_ID
FK Transaction_ID
FK Transaction_Type_Code
Averages, Counts, Totals
KPIs, Graphs, Trends
Percentages, Returns
Other Derived Figures

Products
PK Product_ID
Product_Details

Regions
PK Region_Code
Region_Details

Settlements
PK Settlement_ID
Settlement_Details

Traders
PK Trader_ID
Trader_Details

Transactions
PK Transaction_ID
Transaction_Details

Ref_Calendar
PK Day_Date
Day_Number

Ref_Countries
PK ISO_Country_Code
Country_Name

Ref_Deal_Types
PK Deal_Type_Code
Deal_Type_Description

Ref_Transaction_Types
PK Transaction_Type_Code
Transaction_Type_Description

8.5 Local Government

8.5.1 Statement of Objectives

The typical Statement of Obectuves for in Local Government would be stated in these terms :-

"To provide a range of Services to a varied range of non-residents and residents.

To ensure that these Services are provided economically to meet the specific requirements of the community "

Therefore, the Subject Areas in the Enterprise Data Model must include :-

- Customers or Citizens, with both Residents and non-Residents.

- Services and Products

- Service Delivery

8.5.2 Enterprise Data Model

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/index.htm

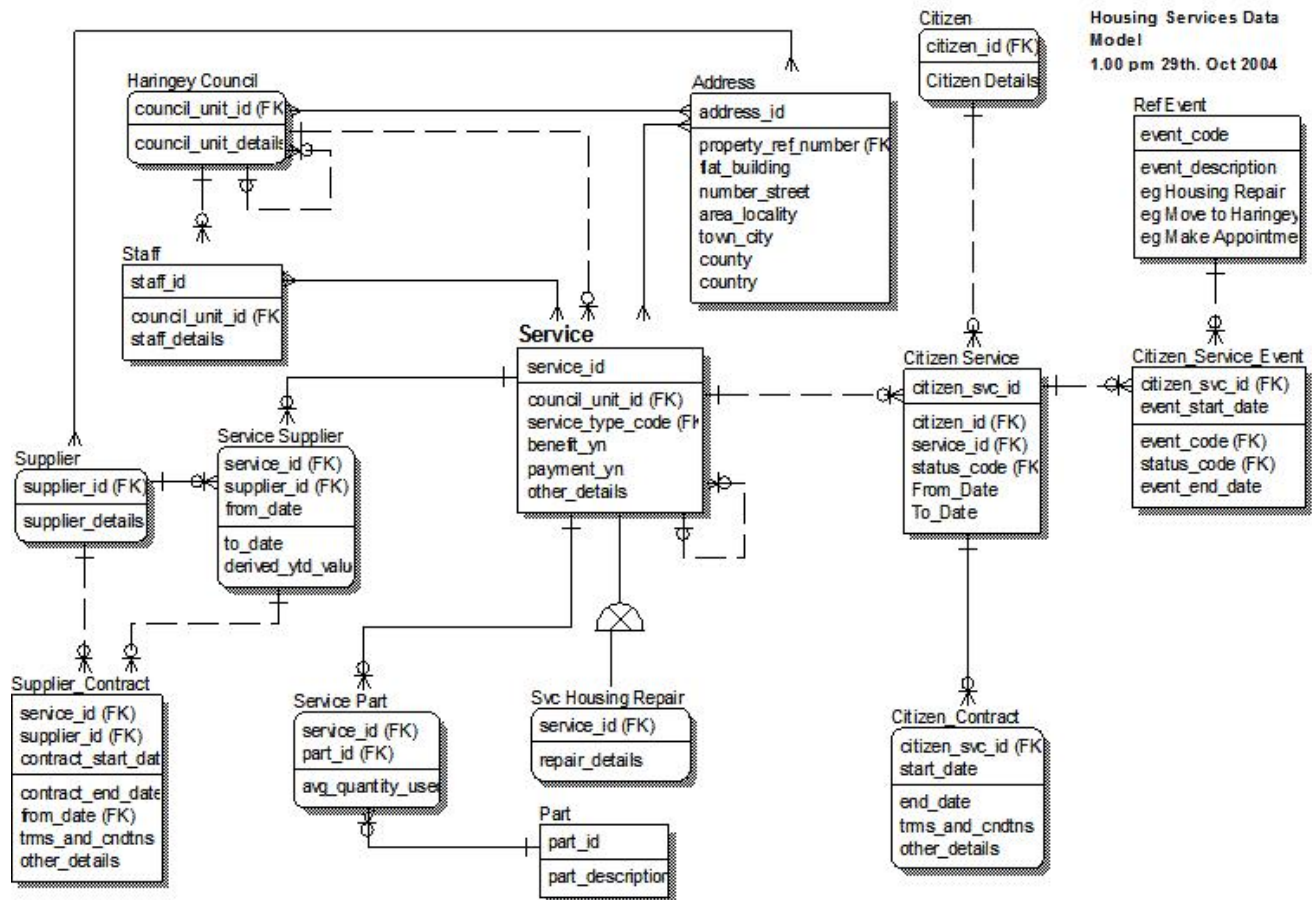Enterprise Data Model for Local Gov't
Barry Williams
Principal Consultant
DatabaseAnswers.com
March 26th 2011
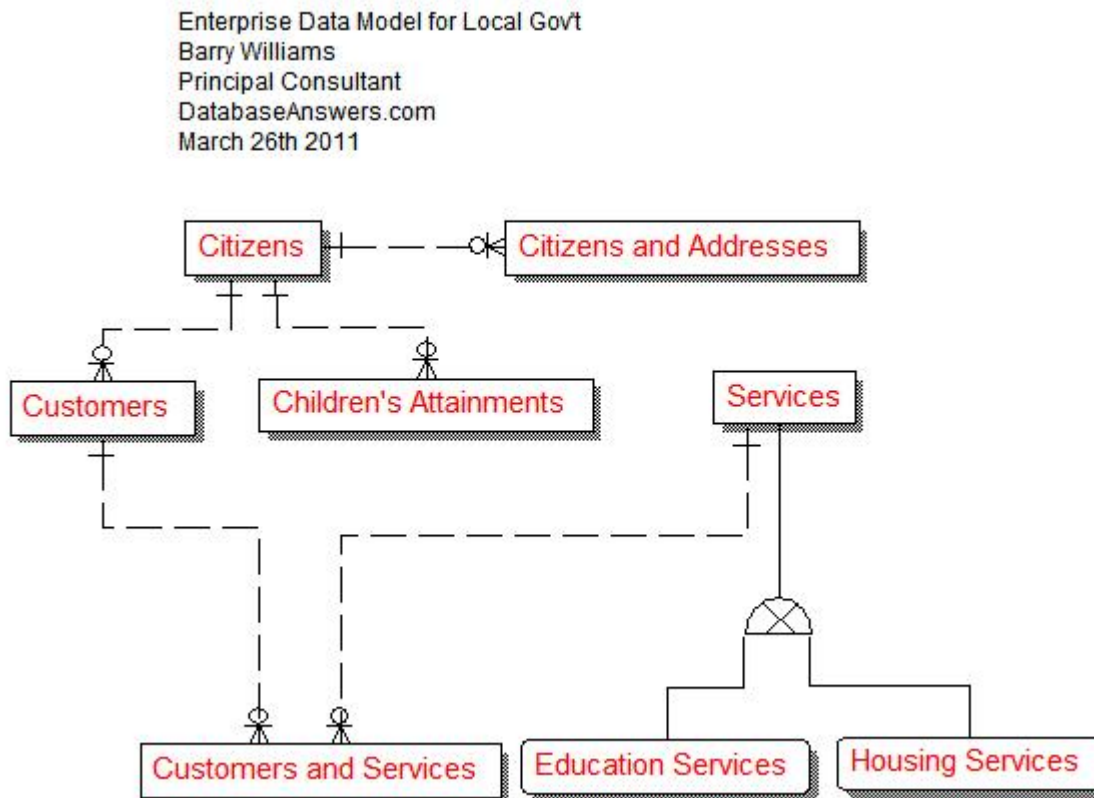
8.5.3 Children's Attainments Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/children.htm
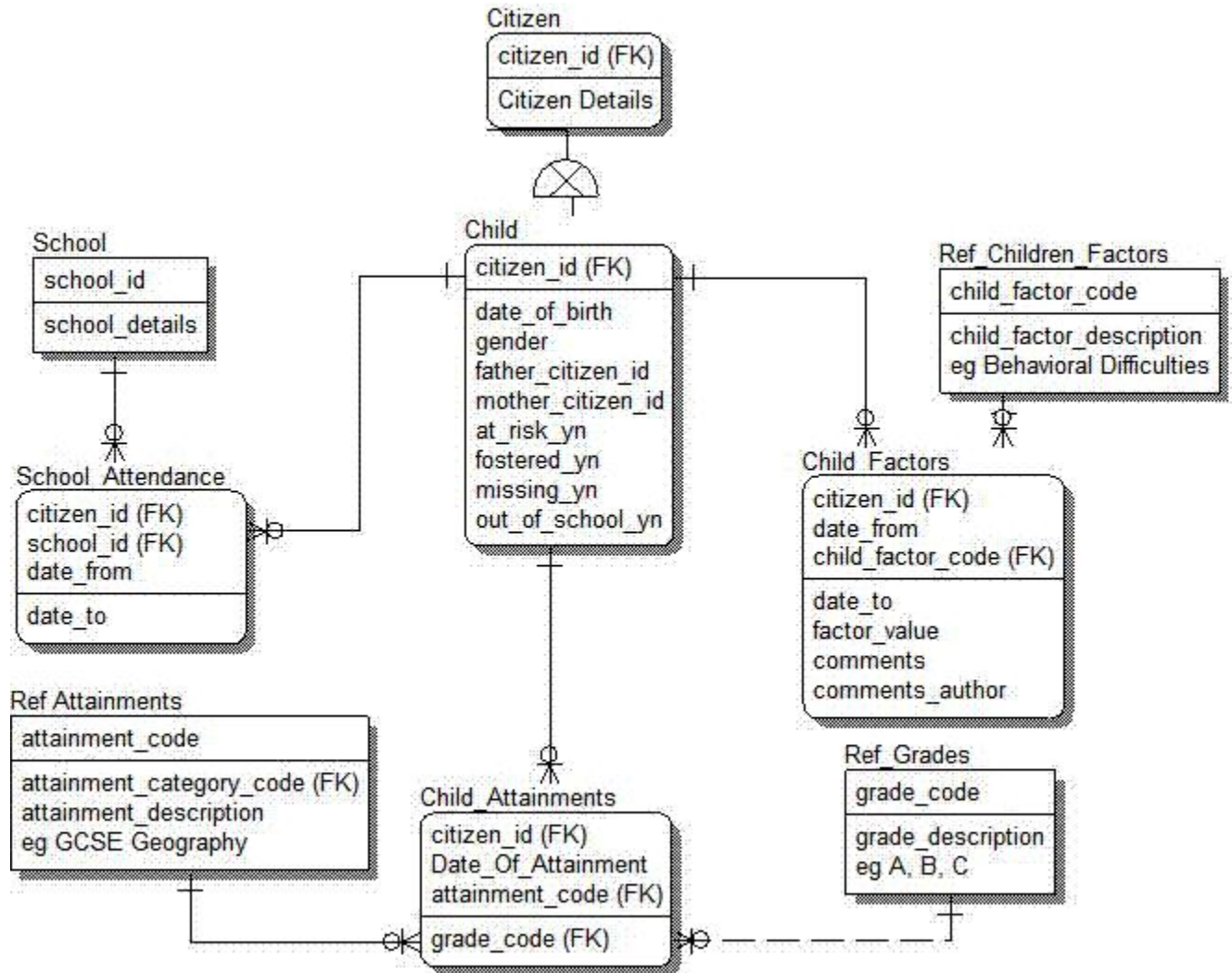
8.5.4 Citizens Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/citizens.htm
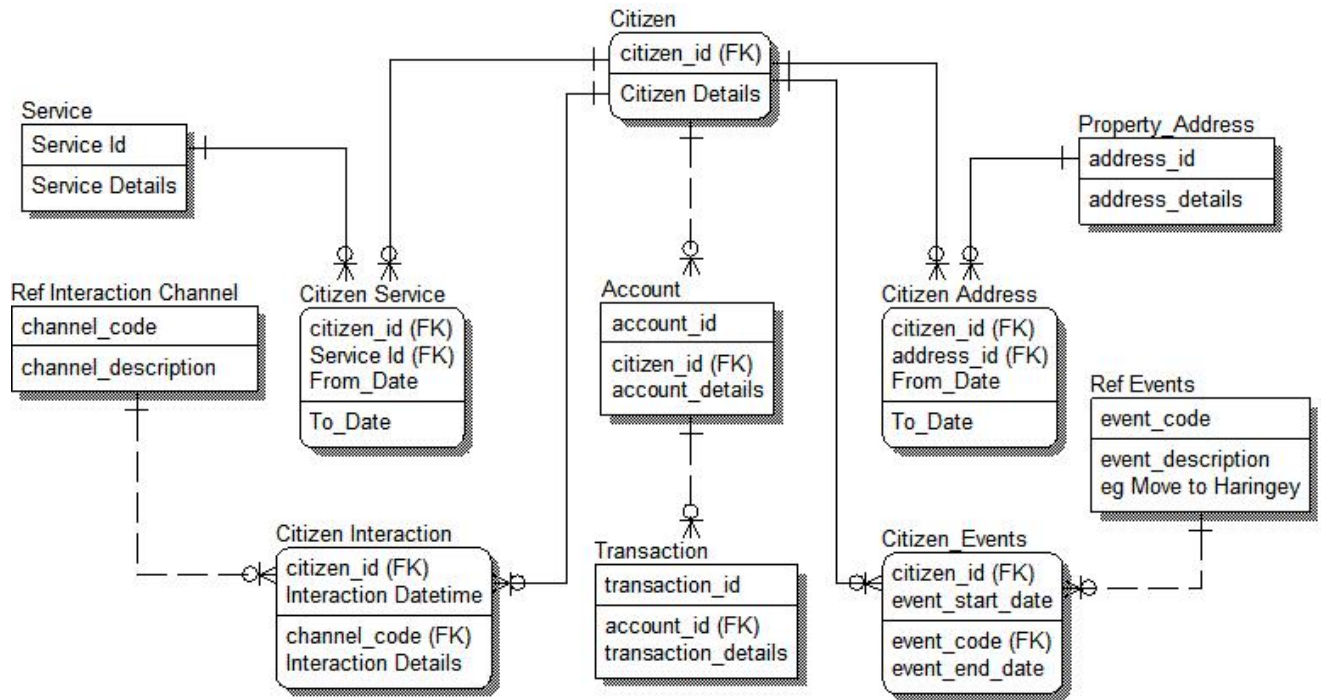
8.5.5 Citizens and Addresses Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/citizens_and_addresses.htm

Citizens and Addresses Data Model
10.00 am Friday
29th. October 2004
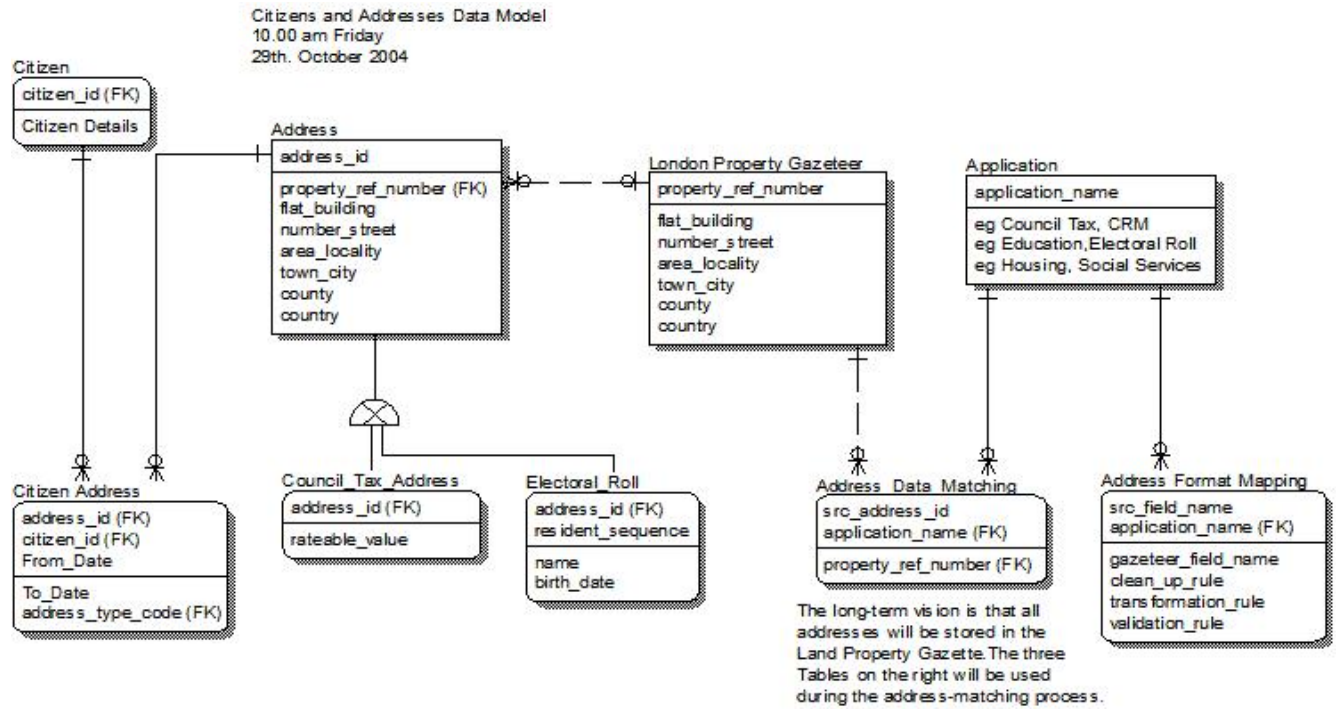
8.5.6 Citizens and Services Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/customers_and_services.htm
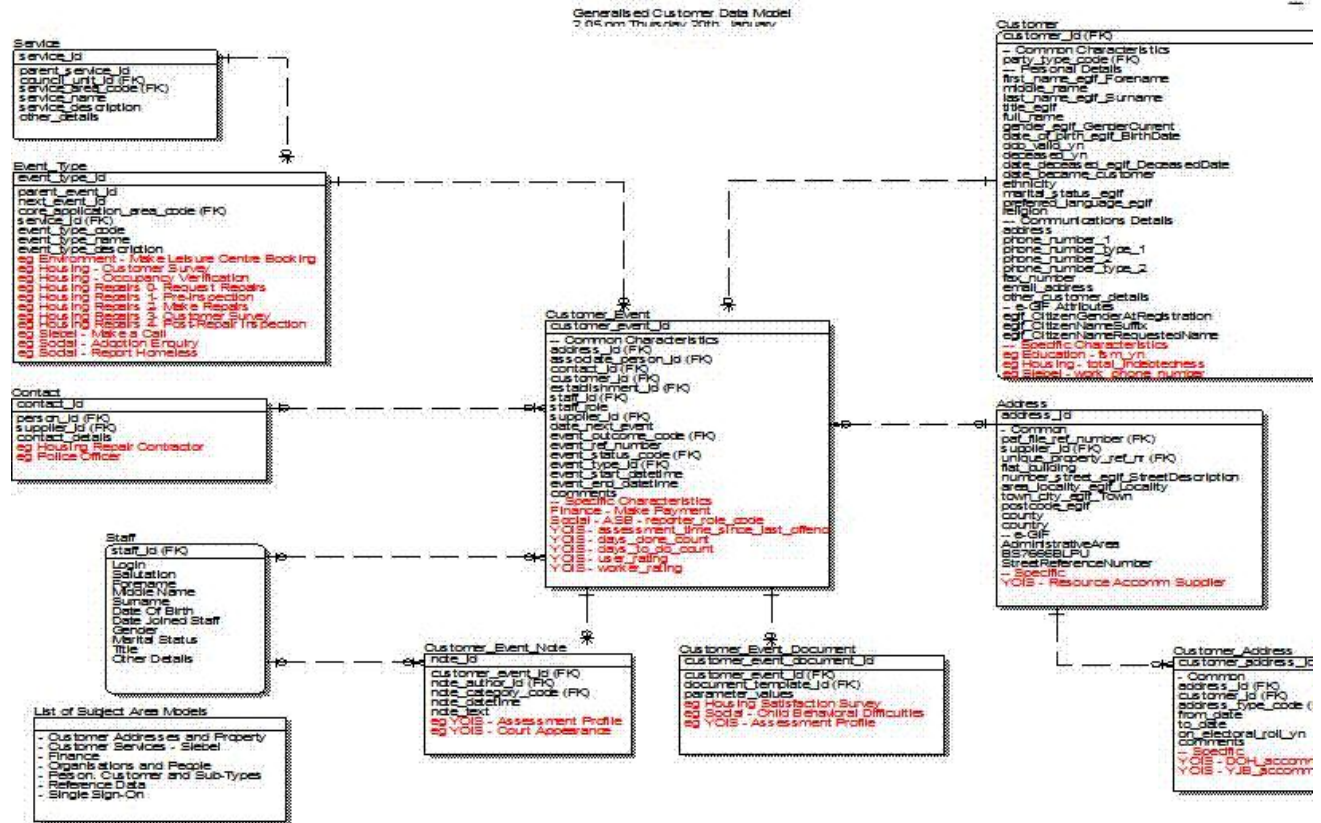
8.5.7 Education Services Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/education_services.htm
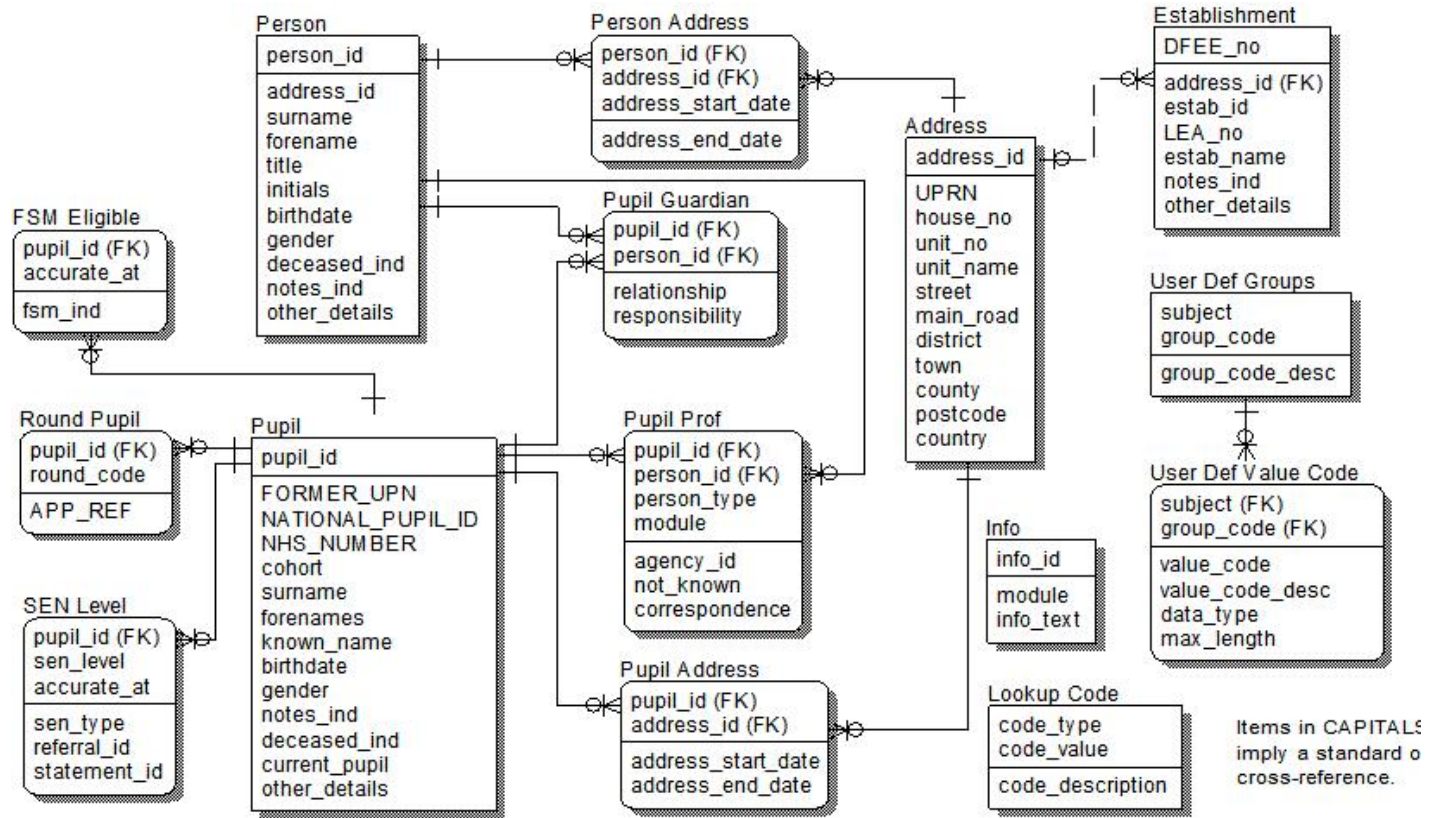
8.5.8 Housing Services Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/housing_services.htm

This Model includes 'Haringey Council'.

Housing Services Data Model
1.00 pm 29th. Oct 2004

Citizen
citizen_id (FK)
Citizen Details

Haringey Council
council_unit_id (FK)
council_unit_details

Address
address_id
property_ref_number (FK)
flat_building
number_street
area_locality
town_city
county
country

Ref Event
event_code
event_description
eg Housing Repair
eg Move to Haringey
eg Make Appointme

Staff
staff_id
council_unit_id (FK)
staff_details

Service
service_id
council_unit_id (FK)
service_type_code (FK
benefit_yn
payment_yn
other_details

Citizen Service
citizen_svc_id
citizen_id (FK)
service_id (FK)
status_code (FK
From_Date
To_Date

Citizen_Service_Event
citizen_svc_id (FK)
event_start_date
event_code (FK)
status_code (FK)
event_end_date

Supplier
supplier_id (FK)
supplier_details

Service Supplier
service_id (FK)
supplier_id (FK)
from_date
to_date
derived_ytd_valu

Supplier_Contract
service_id (FK)
supplier_id (FK)
contract_start_dat
contract_end_date
from_date (FK)
trms_and_cndtns
other_details

Service Part
service_id (FK)
part_id (FK)
avg_quantity_use

Svc Housing Repair
service_id (FK)
repair_details

Part
part_id
part_description

Citizen_Contract
citizen_svc_id (FK
start_date
end_date
trms_and_cndtns
other_details

8.5.9 Data Warehouse

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_local_government/data_warehouse.htm

Data Warehouse for Local Government
Barry Williams
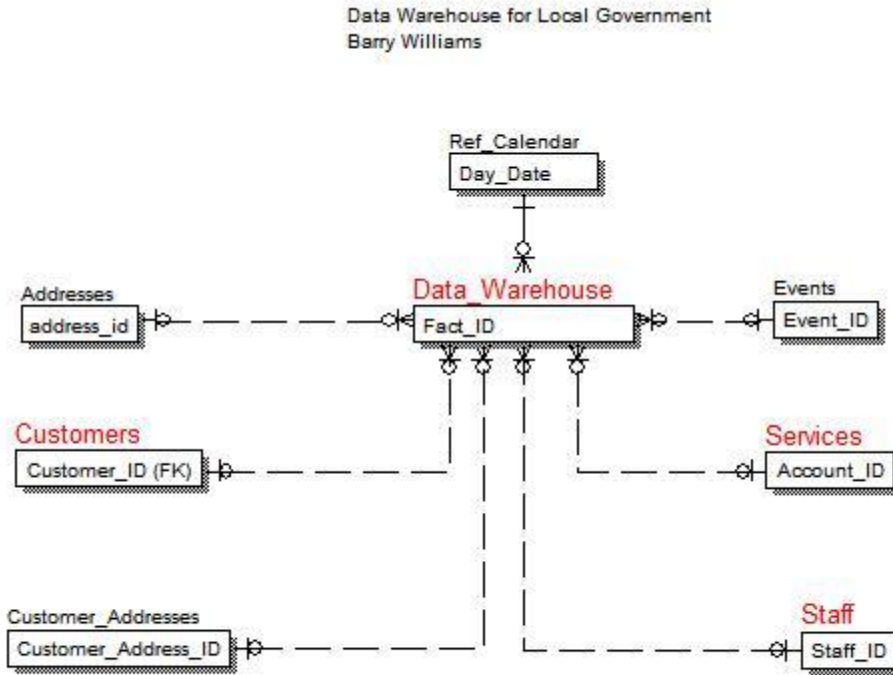
8.6 Retail

8.6.1 Statement of Objectives

The typical Statement of Objectuves for a Retail organisation would be stated in these terms :-

"To offer a range of affordably-priced retail goods and services which are economically distributed and meet the requirements of a targeted customers.

These will be made available in-store and online."

The Subject Areas reflect the Statement of Objectives.

The purpose of this Statement of Objectives is to establish the scope of the Enterprise Data Model :-

The objectives are to offer a wide range of affordable Products.

Costs will be controlled to achieve maximum profit potential from a wide range of affordable Products which are sourced on a 'just-in-time' basis tailored to our target market, with specific Customer profiles.

The Enterprise Data Model will establish the data available for a Data Warehouse to meet Business Intelligence requirements.

Therefore, the Subject Areas in the Enterprise Data Model must include :-

- Customers

- Distribution

- Inventory

- Marketing

- Products

8.6.2 Enterprise Data Model

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/index.htm

Enterprise Data Model for Retail
Barry Williams
DatabaseAnswers.org
March 26th. 2011
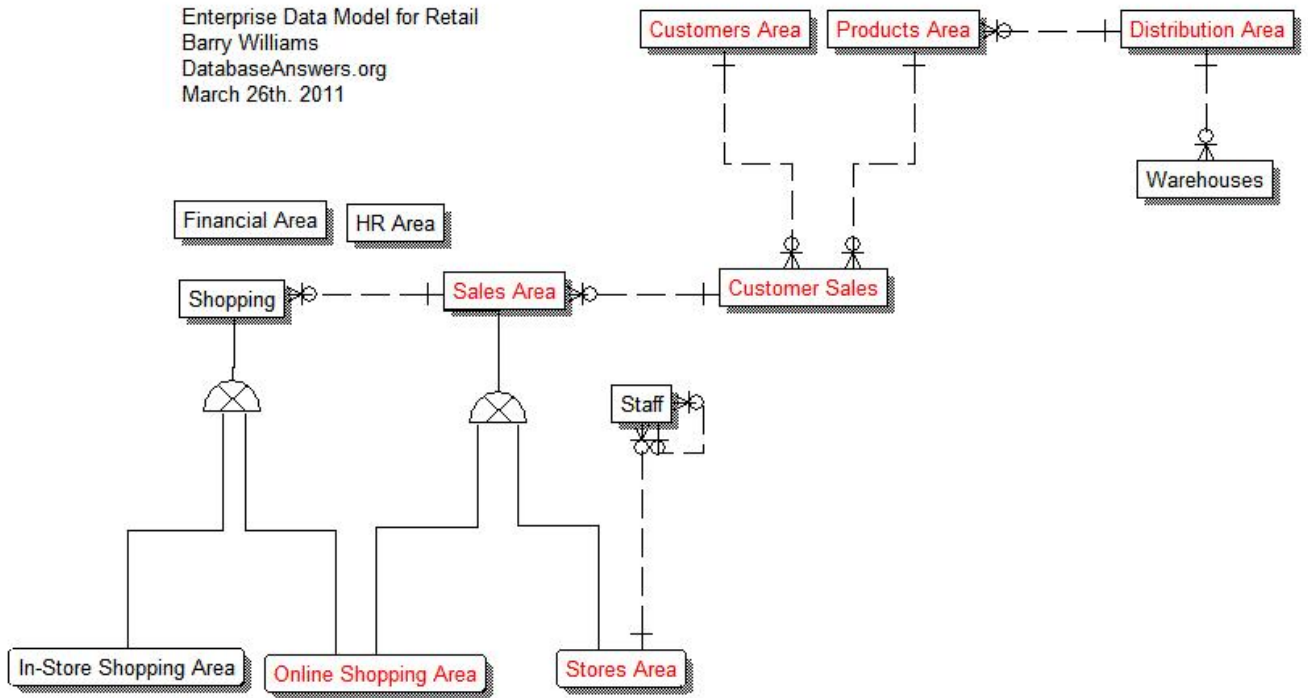
8.6.3 Customers Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/customers_area_model.htm
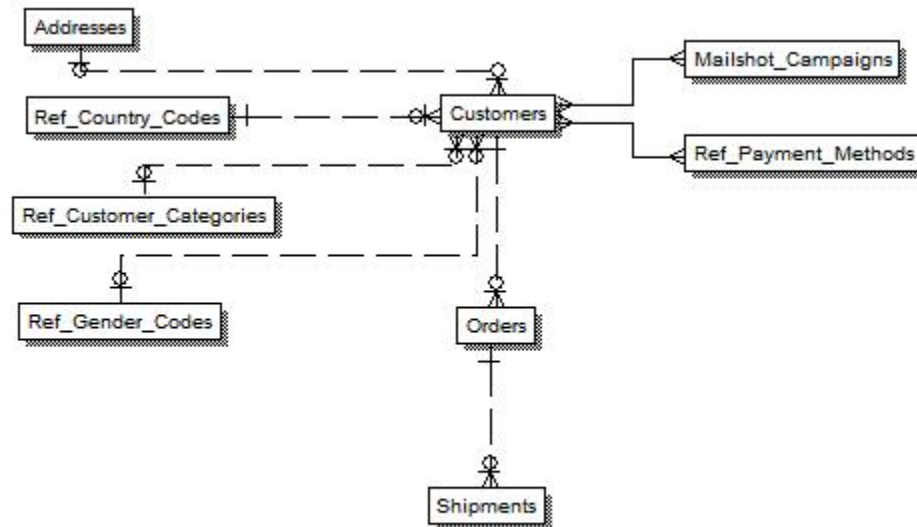
8.6.4 Customers and Orders Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/customers_and_orders_model.htm
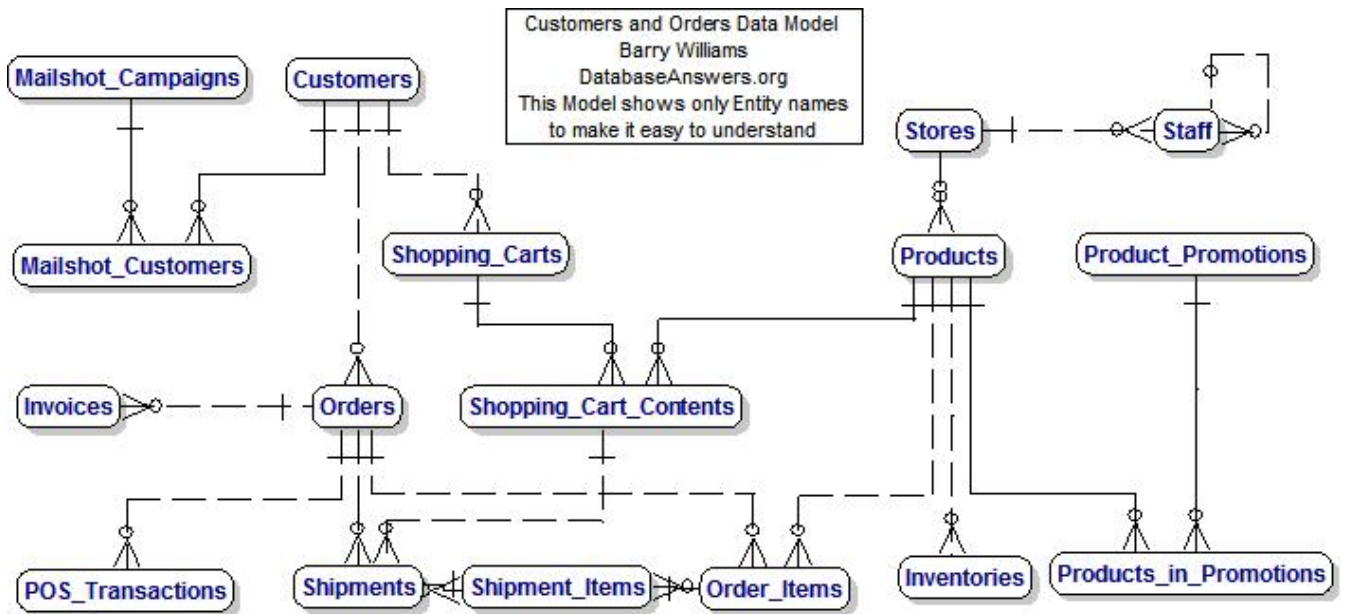
8.6.5 In-Store Shopping Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/in_store_shopping_area_model.htm
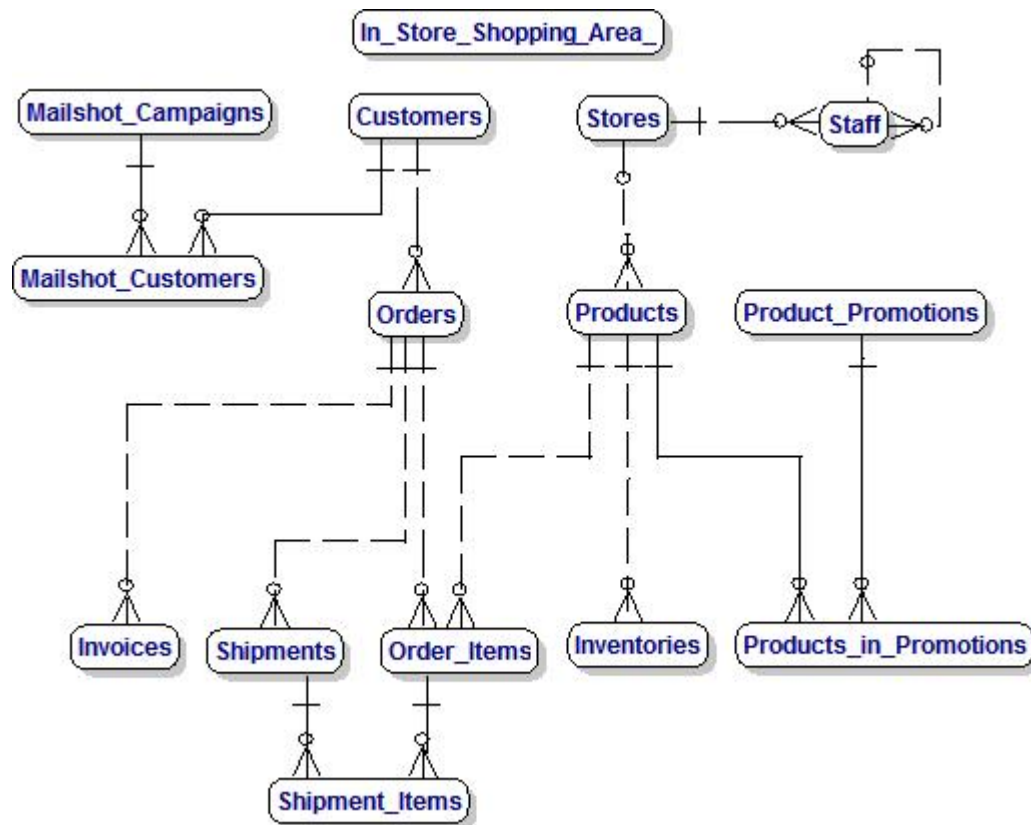
8.6.6 Online Shopping Subject Area

This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/online_shopping_area_model.htm
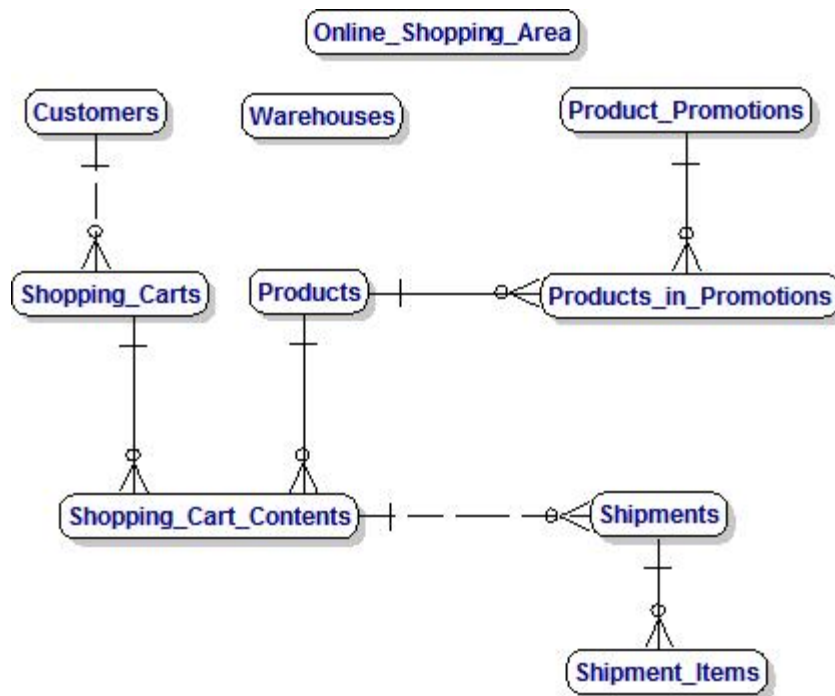
8.6.7 Order History Subject Area

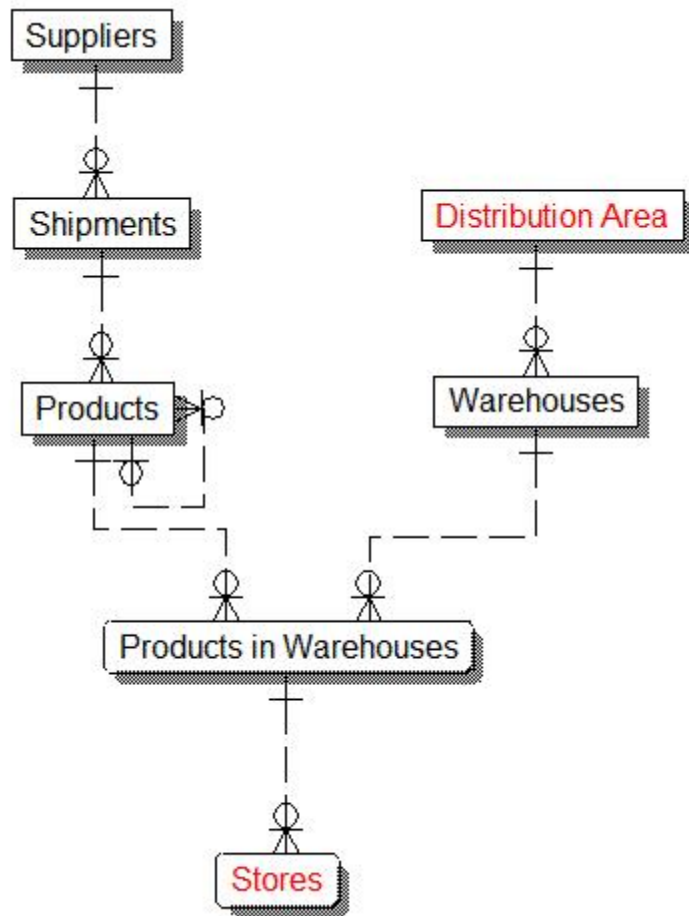This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/Order_History.htm
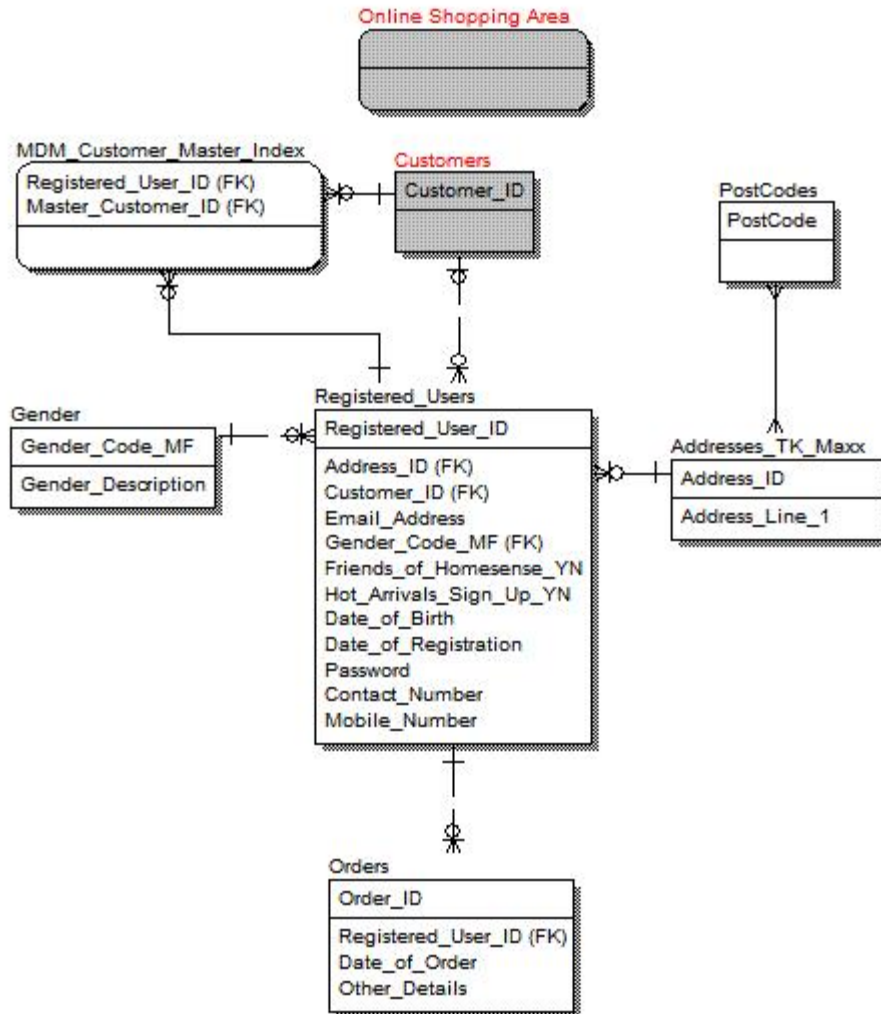
8.6.8 Products Subject Area

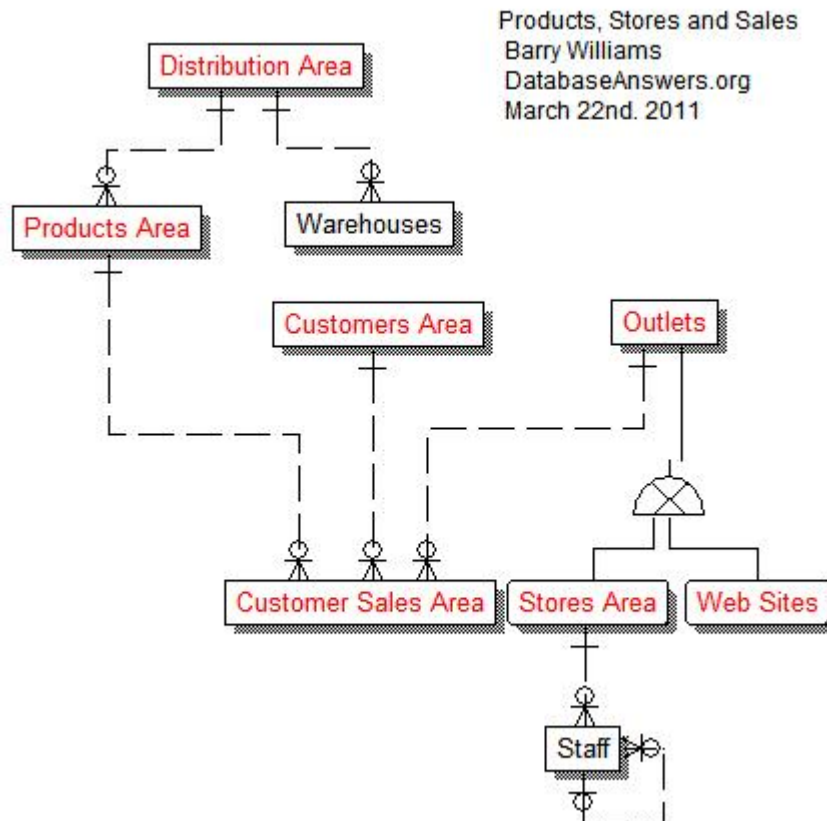This Model appears on this page on the Database Answers Web Site :-

- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/Subject_Area_for_Products.htm

8.6.9 Products, Stores and Sales Subject Area

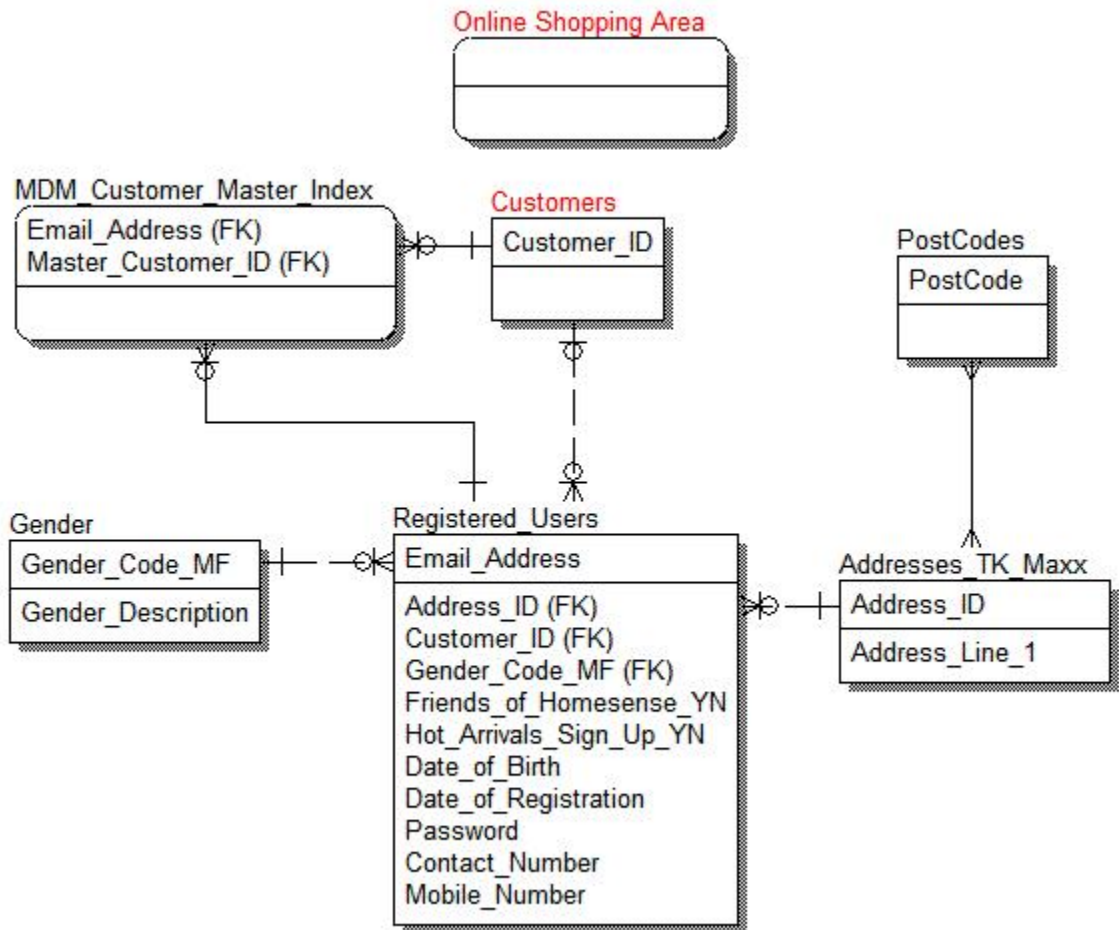This Model appears on this page on the Database Answers Web Site :-

- www.databaseanswers.org/data_models/enterprise_data_model_for_retail/Subject_Area_for_Products_Stores_and_Sales.htm

Products, Stores and Sales
Barry Williams
DatabaseAnswers.org
March 22nd. 2011

8.6.10 Registered Users (with MDM) Subject Area

This Model appears on this page on the Database Answers Web Site :-
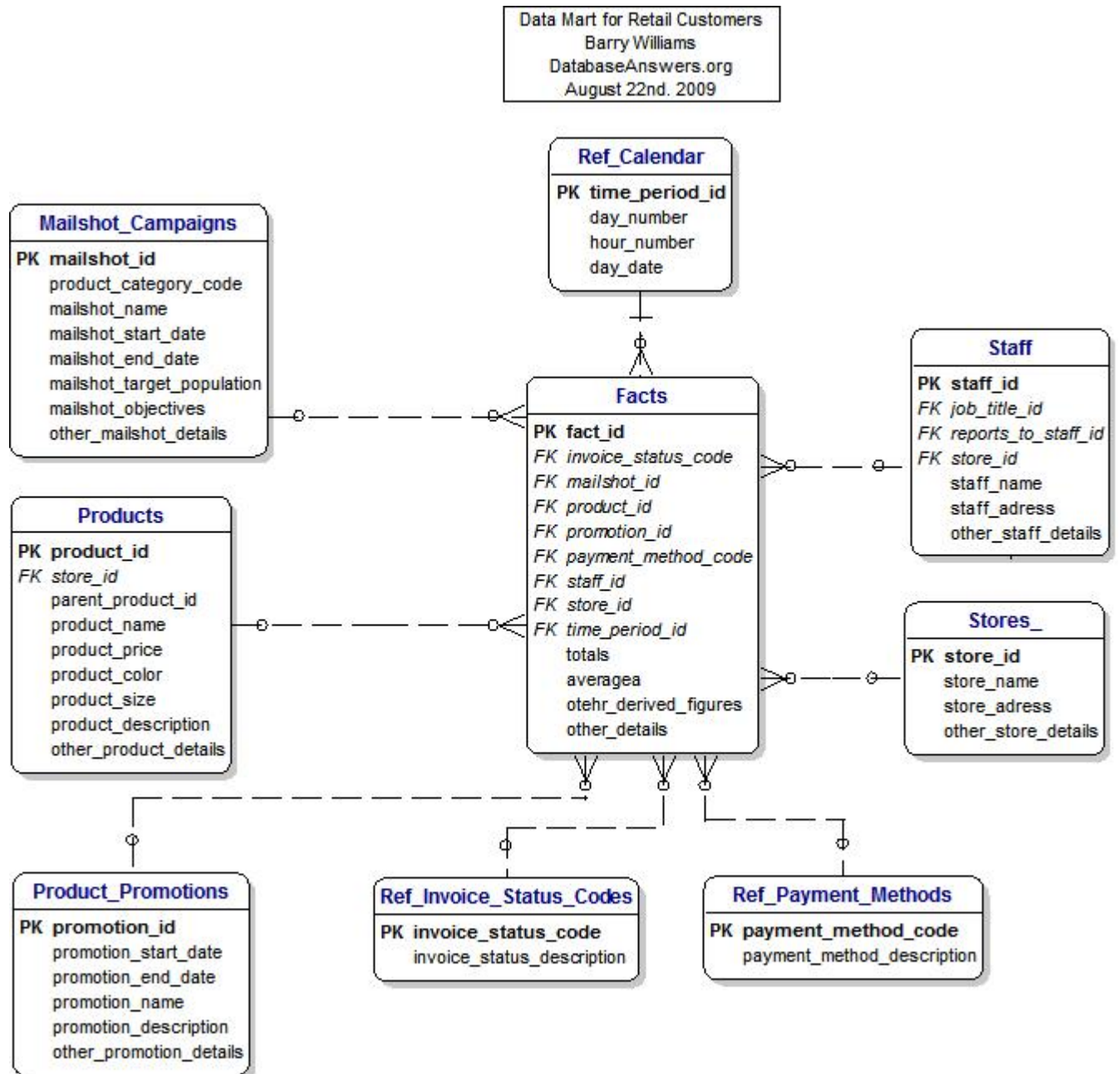
- http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/Registered_Users.htm

8.6.11 Data Warehouse

This Model appears on this page on the Database Answers Web Site :-

* http://www.databaseanswers.org/data_models/enterprise_data_model_for_retail/retail_customers_data_mart.htm

Data Mart for Retail Customers
Barry Williams
DatabaseAnswers.org
August 22nd. 2009

Ref_Calendar

PK time_period_id
   day_number
   hour_number
   day_date

Mailshot_Campaigns

PK mailshot_id
   product_category_code
   mailshot_name
   mailshot_start_date
   mailshot_end_date
   mailshot_target_population
   mailshot_objectives
   other_mailshot_details

Staff

PK staff_id
FK job_title_id
FK reports_to_staff_id
FK store_id
   staff_name
   staff_adress
   other_staff_details

Facts

PK fact_id
FK invoice_status_code
FK mailshot_id
FK product_id
FK promotion_id
FK payment_method_code
FK staff_id
FK store_id
FK time_period_id
   totals
   averagea
   otehr_derived_figures
   other_details

Products

PK product_id
FK store_id
   parent_product_id
   product_name
   product_price
   product_color
   product_size
   product_description
   other_product_details

Stores_

PK store_id
   store_name
   store_adress
   other_store_details

Product_Promotions

PK promotion_id
   promotion_start_date
   promotion_end_date
   promotion_name
   promotion_description
   other_promotion_details

Ref_Invoice_Status_Codes

PK invoice_status_code
   invoice_status_description

Ref_Payment_Methods

PK payment_method_code
   payment_method_description

8.7 What have we learned ?

In this Chapter we have learned how to design Data Models for large commercial Enterprises.

These kind of Enterprises are typically very complex and it can seem at first impossible to design a Data Model that is useful.

In fact, it is common to see Enterprise Data Models that include hundreds of Entities.

It is, of course, very difficult to use these Models.

A good general approach is to start by designing a Top-Level Data Model with a limited number of Entities.

Then designing a number of Subject Area Models will complement the Top-Level Model to allow you to cover a wide range of functionality within the Enterprise.